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ABSTRACT

This study compares environmental education historically and in the present, as well as the environmental problems, in the Republic of Latvia with those in the United States, the United Kingdom, Austria, the Netherlands, and the Scandinavian countries. The environmental education standards and guidelines of Latvia, the United States, the United Kingdom, and Denmark are then examined and contrasted with the attempt to borrow the ideas suitable for future standards of environmental education in primary schools in Latvia. Nine tables are included for the purpose of drawing the parallels and identifying the differences between the countries. Considerable similarities were found among countries. Suggestions for inclusion in the upcoming standards and suggestions for further research are offered. Chapter titles include: (1) "Aspects of Environmental Education in Latvia, the USA, and a Group of European Countries"; (2) "Methodology for This Study"; (3) "Environmental Situation and Environmental Education Standards and Guidelines Compared"; and (4) "Synopsis of Lessons for Latvia." (Contains 77 references.) (EH)

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EDUCATIONAL STANDARDS IN ENVIRONMENTAL EDUCATION:

LESSONS FOR LATVIA

by

Evija Vestergaard

Thesis submitted to the Faculty of the Graduate School of the
University of Maryland at College Park in partial fulfillment
of the requirements for the degree of
Master of Arts
1997

Advisory Committee:

Professor Judith Torney-Purta
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ABSTRACT

Title of Thesis: EDUCATIONAL STANDARDS IN ENVIRONMENTAL EDUCATION: LESSONS FOR LATVIA

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This thesis compares environmental education historically and in the present as well as the environmental problems in the Republic of Latvia with those in the United States of America, the United Kingdom, Austria, the Netherlands, and Scandinavian countries. The environmental education standards and guidelines of Latvia, the United States of America, the United Kingdom, and Denmark are then discussed and contrasted with the attempt to borrow the ideas suitable for future standards of environmental education in primary schools in Latvia. Nine tables are devised with the purpose of drawing the parallels and identifying the differences between the countries. Considerable similarities were found between countries. A list of suggestions for inclusion in the upcoming standards and suggestions for further research are given.

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CHAPTER I

Aspects of Environmental Education in Latvia, the USA, and a Group of European Countries

This chapter presents the history of environmental education and public awareness in Latvia and explores the areas of recent development of environmental education in Latvia. It describes the evolution and development of environmental education in different countries, and examines the important lessons learned in the United States of America and a group of European countries that can be of value to the budding environmental education of Latvia. Empirical research illustrates what should be included in environmental education curriculum to help students exhibit more responsible, ethically and emotionally concerned environmental behavior.

The countries chosen for analysis here are Latvia, the United Kingdom, Austria, the Netherlands, former Democratic Republic of Germany, the Scandinavian countries, and the United States of America. The criteria for inclusion were some similar aspects of the environmental education in these countries, geographical proximity that means similar environmental problems, and common historical background as in the case of Latvia and the former GDR. The USA was included as an example of well functioning democratic country rich in diverse opinions on environmental issues, approaches to environmental education, and materials for environmental education. The first chapter of this paper attempts to give only a general set of suggestions useful to the developing

environmental education of Latvia. Chapters III and IV contain a thorough analysis and comparison of environmental education in a group of selected countries.

In order to write this paper an approach including several types of data gathering and analytic frameworks have been employed. Relevant documents were examined. Interviews with environmental specialists and educators reveal perceptions of the environmental situation, the status of environmental education and public awareness in Latvia, Denmark, the UK, and the USA. It needs to be noted that Denmark, the UK, and the USA were particularly chosen from the group of the discussed countries for comparison of environmental education standards against Latvian guidelines of environmental education due to technical reasons: availability of the existing environmental education standards to the author and the author's ability to understand the original languages of the documents.

This paper attempts to analyze the goals, tasks and content of the presently existing Guidelines for teaching environmental issues in primary schools of Latvia. Present environmental problems of Latvia, Denmark, the USA, and the UK are compared, and their influence on environmental education standards of the four countries discussed. The emphasis is put on the comparison of Latvian Guidelines of Environmental Education with the standards existing in the UK, Denmark, and the USA. The main goal of the paper is to identify the ideas which can be borrowed from environmental education standards documents of the UK, Denmark, and the USA, as well as the environmental education experiences of these and other countries. Suggestions and ideas on what needs to be included in the upcoming Standards of Environmental Education of Latvia and what requires further research are given.

Environmental Education and Public Awareness in Latvia

Not so long ago, only "nature lovers" and a small group of scientists who were close to the evidence of environmental damage were concerned about the environment. Now, the awareness of growing environmental crisis is raising a range of new questions: scientific, political, social, economic, ethical, and cultural. To be successful in reshaping our future in line with local and global environmental constraints, the life-styles of inhabitants of our planet need to be changed. The most effective long-range strategy for achieving this objective is a new concept of education—education about environment received as early as possible in a person's life and continuous throughout life. The UN Bergen Conference report (1973) recognized this problem and the importance of "participation of well-informed and well-educated society as basis for democratic political change, consistent with sustainable development." The belief that the only workable solutions that will work in the long term are those that address the root of the problem and involve all members of society is widely endorsed.

Education has been defined differently, and it has had various functions. But, the acquiring of knowledge and learning of skills are traditional components of almost all of existing definitions. Lacey suggests to expand the definition by adding development of environmental intelligence (Lacey, 1992). By this he means the "ability to recognize and solve the important problems that confront the individual or the collectivity" (p. 27).

Environmental education is approached in various ways, applied differently and with varying degree of impact in countries around the world. Although the differences in environmental education depend on the context of a specific country or region, there are

no countries or regions that have no need for environmental education. Hickling-Hudson (1994), in her review of environmental education in the world's developed and less developed countries, wrote that neither capitalistic nor socialistic countries' economic systems have ecologically sustainable goals, but are building on the assumption that our planet's resources are inexhaustible.

For fifty years (1940-1990) Latvia was a part of the communist empire which had many laws on environmental protection but almost no sanctions for those who did not observe these laws. As Mikhail Gorbachow wrote in 1990 of the Soviet Union, "...after the revolution [1917], when we started industrializing...we were not inclined to divert our attention to 'secondary questions' as the environment seemed to us at that time" (Gorbachow, 1990).

After regaining its independence from Soviet Union in 1991, Latvia found itself a poor country with a disastrous economy, being so concerned with survival and development that environmental problems still seemed to be of low priority to the government. The people, overwhelmed with the changes in the political and economic situation, withdrew from national environmental/political activities and movements characteristic of the 1980s. In the education system a major constraint was the inadequacy of both human and material recourses. Schools were disadvantaged by a shortage of educators trained in environmental education, a lack of basic materials, as well as very low income and a high stress level in most families of students.

Nevertheless, the environmentalist movement in Latvia had been strong during the Soviet times, and it has the potential to continue developing, growing, and expanding within the education system now, when Latvia is in a state of transition. In particular,

Latvia is quite unique with its environmental non-governmental organizations that during past decades had influence on the government's nature protection and culture policy even when the power of most non-formal organizations was limited. Since the beginning of the 1980's non-governmental organizations have had a crucial role in promoting environmental concerns, environmental education and public awareness. The activities of environmental NGOs, such as the Environmental Protection Club (VAK) were of tremendous importance during the period of awakening at the end of the 1980's and regaining independence in the very beginning of the 1990's.

Other NGOs involved in environmental awareness dissemination in Latvia have been the Latvian Society for Nature and Monument Protection and the Latvian Culture Fund. These organizations now mostly deal with the restoration and protection of designated nature and cultural monuments. The Student Nature and Monument Protection Brigades of the University of Latvia have led very enthusiastic and professional work in clean-up, restoration, and public awareness campaigns and have served to develop and spread the ideas and activities often associated with green policy. One of the biggest activities involving thousands of people organized annually for several years was "Joining Hands Around the Baltic Sea" established by VAK and later continued by the Latvian Coalition for a Clean Baltic.

The expansion of NGOs' work to embrace more environmental education has led to NGOs' cooperation with government institutions, such as the Environmental Education Department at the Ministry of Environmental Protection and Regional Development and also with the Ministry of Education and Science. NGOs are working on developing cross-curricular environmental education programs and materials. Public

awareness and environmental education projects include programs on environmentally sensitive tourism, energy issues, household ecology and waste management, and health education. The most active NGOs in the sphere of environmental education are the University of Latvia Ecology Center and the Children's Environmental School. Both of these organizations run educational seminars and produce original and translated resource materials.

There is still much to be wished for in the development of environmental education and environmental public awareness in Latvia (Ernsteins, 1994). The following problems need to be recognized:

(1) Lack of national strategy for environmental education in comprehensive schools (The primary schools have received the Guidelines for Environmental Education in 1996. There are still no guidelines for secondary schools.)

(2) Lack of environmental education curriculum, programs, textbooks, and teacher aids.

(3) Lack of commonly agreed on environmental terminology in the Latvian language.

(4) Insufficient interdisciplinary pre-service and in-service of environmental educators and administrators.

(5) Insufficient communication and cooperation between academics, scientists, state environmental officials, legal and physical persons, non-governmental organizations, and the local population (Ernsteins & Jurmalietis, 1996).

Besides this, there are many limitations for raising public environmental awareness and participation:

(1) Too few television and radio programs dealing with environmental issues.

(2) Insufficiently spread and developed grassroots non-governmental organizations.

(3) Lost traditional culture-folklore elements, characteristic of societies in transition.

(4) Enormous lack of adult education institutions, as well as slow development of the formal education system.

(5) Unstable social-economic and political situation in the country.

All the above mentioned reasons lead to the result that wide public involvement in environmental activities has decreased in the recent past. Broad environmental/political activities that were so characteristic of the first period of transition in Latvia have nearly ceased (Ernsteins, 1994).

Nevertheless, there are a number of NGOs and other institutions in Latvia working on the issues of environmental education. The work of these organizations has become more specialized. The Children's Environmental School (CES) has concentrated on environmental education for the primary schools. This non-governmental organization was established in Latvia by three enthusiastic young people in 1989 after they had had a chance to get acquainted with Cornell's camps in America. Originally, it was meant to be an institution dealing with the organization of national summer camps for school children. Later it expanded to include a full time staff of 10 people who, besides doing camp organizing, worked on various environmental projects aimed for the primary school level in Latvia, prepared teacher and student materials about specific environmental issues, and organized seminars for teachers interested in environmental education.

CES has expanded its work beyond Latvian national action and prepared projects for the Field Study Council of Great Britain, the Swedish Coast Watch Program, and the

World Wildlife Foundation. Besides the foreign financed projects, CES has also worked on Latvian national projects. CES is the author of "Guidelines for Environmental Education in Primary School" approved by the Ministry of Science and Education of Latvia (Interview with Jolanta Guza, 1997).

There are other institutions involved in environmental education. The Ecological Center of the University of Latvia is actively working on a very wide spectrum of environmental issues, including education. Another organization at the University of Latvia, the Center for Environmental Science and Management Studies (CESAMS), mostly deals with environmental education at the university level but also on the secondary school level. In 1992, CESAMS evolved out of a student NGO, the Ecological Center of the University of Latvia, since 1988 a cross-disciplinary organization in the field of environmental work involving students in non-formal environmental education (Ernsteins & Benders, 1994).

CESAMS offers cross-disciplinary graduate courses towards the Master of Science degree for environmental educators and environmental managers as part of the Environmental Management Studies. The students become either environmental education teachers or environmental specialists in local organizations. The University of Latvia does not offer a Bachelors degree in Environmental Studies (Interview with Daina Sulga, 1997).

Some environmental issues are being taught as a part of courses offered to future civic education teachers earning their Bachelor's degree in Pedagogical Colleges in Riga, Liepaja, and Daugavpils. The number of future civics teachers is not large because, in general, there are not many people willing to become teachers at present in Latvia. In

Liepaja Pedagogical College there are about 35 to 40 students a year attending Civics courses as a supplementary part to a broader course of study in Riga and Daugavpils, about 20 students in each of these institutions. "The present economic situation forces even those who would like to be teachers to find some other ways of earning their living. A teacher's salary is not sufficient for survival, unless a teacher gets employed in one of a very few private schools. Only a very limited number of students can hope for a good pedagogical career" (Interview with G. Catlaks, 1997).

CESAMS has cooperated and still cooperates with other institutions or organizations. A very successful cooperation in Central and Eastern Europe (CEE) was the Environmental Education Network launched in 1990/1991. It was supported by the Central and Eastern European NGO Network "Greenway" and the Regional Environmental Center for CEE, an NGO support foundation located in Budapest. The outcomes of the project were: 7 issues of newsletters on environmental studies, a directory of individuals and organizations of environmental education in CEE, and a computerized EE-NET data base. Unfortunately the project is over, and as of Winter 1997 the necessary financing had not been found to continue the work. Besides, the situation in Europe has changed. For example, Yugoslavia is a different country now, and the original work plan is not feasible. During the late 1990's CESAMS has worked on establishing a network between the countries that lay around the Baltic Sea to develop and disseminate environmental education programs (Interview with D. Sulga, 1997).

There is also presently an agreement between the Latvian and Norwegian Ministries of Education about carrying out a project called "Latvian-Norwegian Project

of Environmental Education". Sixteen schools are involved in the project's environmental activities. Materials about their experiences are planned to be published, and the project is to be expanded to include not only students of grades 1 to 12, but also teachers and school administrators.

CESAMS also cooperates with the Children's Environmental School in preparing some educational materials, but only to some extent, because they work on different grade levels and different audiences. Nevertheless, CESAMS gave its input to the "Guidelines for Environmental Education in Primary School" that were prepared by the Children's Environmental School, with some assistance by the Ecological Center of the University of Latvia. These guidelines have been approved by the Ministry of Education and Science.

An organization that brings environmental educators together, the Association of Environmental Educators, was founded in 1994. Information exchange between different environmental organizations is facilitated through them . The association has its own newsletter and organizes regular seminars where environmental educators can meet and exchange their experiences.

Environmental educators attending the seminars are usually driven by pure enthusiasm, because there are very limited finances available to teachers involved in environmental education. At this time, in general, financing of education is difficult. It is almost impossible to find any financial support for the teachers or local activists. It is also not easy for people to find spare time for doing voluntary work. The present economic situation demands that everyone spends almost the entire daytime earning their living or sustaining their living by farming (Interview with D. Sulga, 1997).

Nevertheless, the Ministry of Education is trying to solve these budget problems. Starting with the study year 1996/1997, all schools in Latvia must teach Civics in the 9th grade according to the National Standards for Civic Education for the 9th grade. To some extent environmental education is a part of the Civic Education curriculum. Certain aspects of the environment are stressed in the Civics course, for example, government environmental protection policies. Environmental issues are also taught through other themes, for example, elections or other decision making processes where the environment is one of the issues considered in order to make a decision. Students are taught that environmental policies can be regulated and should be regulated wisely by governments (Interview with G. Catlaks, 1997).

Catlaks further said that the plan for the future is to include even more environmental issues in Civic Education. The work of a non-governmental organization, the Democracy Advancement Center, that prepared the Civic Education curriculum with the help of American foundations, the United States National Endowment for Democracy, and the United States Information Agency, has been supported by the Ministry of Education and Sciences. Its policy is to further develop the teaching of social studies in schools. It has a new project under development currently, a new civic education curriculum project for grades 7,8, and 9. The plan is for Civics courses to be taught in all grades of the primary school, covering issues of economics, environment, religion, and education.

The institution responsible for developing these standards works under the Ministry of Education and Science. It is a special board, the Center for Curriculum Development and Examination. The administrative staff of the center is responsible for

organizing groups of specialists to work out the programs and standards for different subjects. After the materials are developed, the Center is responsible for distributing them to all the schools for free.

This section has summarized the historical developments of environmental education and public awareness in Latvia, including a condensed overview of the role of non-governmental organizations in the development of environmental awareness and education in cooperation with government institutions. The two main problems for further development of environmental education remain the lack of environmental knowledge by teachers and limited financial recourses.

Experience and Status of Environmental Education in a Variety of Countries

Environmental education, since its appearance on the international agenda following the United Nations Conference held in Stockholm in 1972, has developed in many ways and differently in various countries around the world. The more than 20-year experience of these countries is of great value to the developing environmental education of Latvia. This section will look into some aspects of the environmental education system of a number of countries. First of all, the experience of the United States of America will be analyzed, then a group of European countries in which past experiences have some parallels to the situation in Latvia at the present. These countries can be divided into two groups: the developed First World countries and countries-in-transition.

Comparative analysis of environmental education guidelines, standards, and environmental education curriculums of Latvia and other countries will follow.

Similarly to other developed countries of the world, interest in the environment and environmental education in the United States of America has increased during the past two decades. American experience in the field of environmental education has a rich history in empirical research on environmental issues, including environmentally responsible behavior, and environmental sensitivity, as well as in preparing various curriculums, programs, and guides for environmental education. All this experience and the knowledge acquired over the past decades is of great value for developing environmental education programs of Latvia. In order to evaluate which aspects of this experience are suitable for Latvia, it is necessary to have a general picture about the status of environmental education in America.

There are two views on how to proceed with environmental policies in America. Environmentalists believe in sustainable development that rely on education of the citizens and employment of better technologies to solve environmental problems. On the other hand, those who support "deep ecology" call for living in harmony with nature, reducing material needs, increasing recycling, and limiting resource-consuming technologies (Flevry & Sheldon, 1996).

There are a number of organizations that are big contributors to environmental education in America. Perhaps the most visible curriculum supplements are Project WILD and Project Learning Tree, which are products of the Western Association of Fish and Wildlife Agencies, the Western Regional Environmental Education Council, and the American Forest Foundation. Among the professional organizations involved in

environmental education are the North American Association for Environmental Education (NAAEE) and the Alliance for Environmental Education (Berkowitz, 1993). These organizations have taken the "environmentalists" position, i.e., they believe in sustainable development that counts on education of all people and the employment of better technologies to solve environmental problems.

NAAEE is the world's largest association of environmental educators. It is working in the field of environmental education not only in North America but also in more than 25 countries throughout the world. NAAEE has been in existence for more than 20 years and has promoted the belief that education is the key to sustainable development and a better quality of life. The goal of NAAEE is not only to give knowledge about the environment to people but also to teach the skills and commitment necessary for problem-solving, decision-making, and action. The goal is to be achieved by implementing the NAAEE Standards Project for Excellence in Environmental Education prepared by NAAEE for the schools of America. In this thesis some aspects of these standards will be compared to the Latvian environmental education guidelines and used as a source of proposals for the upcoming Latvian Standards of Environmental Education.

One of the European countries in which environmental education standards can be analyzed and used for theoretical and practical input is the United Kingdom. The situation in environmental education in the UK before 1988 was in many ways similar to the situation in Latvia now. Before the Education Reform Act (1988) teachers in the UK were quite free in choosing the content of courses. It led to many exciting developments but there were also difficulties. The content of the studies was aimed towards giving

students the descriptions of how the natural world functions but often did not give the skills to identify the problems or explore solutions (Hale & Hardie, 1993).

Changes started occurring after the issuing of the Education Reform Act and the Government's White Paper on the environment, "This Common Inheritance" (DOE, 1990). It was stated in the White Paper that environmental education is needed to effectively implement environmental policy through an informed and aware population. A new National Curriculum was adopted and implemented in the schools of the UK beginning in 1990. This curriculum includes environmental education and will be analyzed and compared to the Latvian Guidelines for Environmental Education in primary schools in later chapters.

The Austrian model of environmental education also has many strengths, and it will also be considered for its usefulness for the Latvian environmental education system. The Austrian model is firmly rooted in the school and its community, with networks available to facilitate communication among organizations and individuals involved in environmental education.

The Austrian model was evaluated by the Center of Education Research and Innovation (CERI) under the project, "The Environment and School Initiatives" (OECD, 1994). The project was aimed at school-based research and development in the field of environmental education. It described the successful use of action-research methods by teachers and students, and genuine and authentic students' commitment and enthusiasm. But it also noted that some of the evaluated school projects were heavily influenced by a charismatic teacher, which might lead to students' impatience and "need" for clear-cut solutions or fixed responses (CERI, 1995).

Dunlop (1993) described some problems of the Austrian environmental education model and the plans for the dissemination of environmental education in Austria. He noted that environmental education should be removed from its strictly natural science context, and the social, political, and economic dimensions, both in the content and methodologies promoted at school, need to be included. Austria aims to require all of its 11 000 teachers to experience pre- and in-service education to be able to teach environmental issues. The costs of providing such an exposure to education content and methodologies are not ignored nor are the complexities of managing interdisciplinary techniques of environmental education.

There are an number of lessons from the Austrian experience and described by Thonhauser (1992) in the survey of Austrian environmental education that could be applied to the Latvian school system in the stage of transition. First, school infrastructure needs to be changed from authoritarian to more liberal with more project-oriented teaching and student-centered learning. Second, other features essential for the promotion of environmental education—like field work, integrated subject teaching, quality control of resource materials, study time for teachers, small class sizes, cross-curriculum environmental education, education management, and teacher courses to enhance environmental knowledge and skills—should be addressed and incorporated in the system of environmental education.

Another country that had a similar status of environmental education in the 1980's to the current status of Latvia is the Netherlands. Since then, the Netherlands' environmental education has developed and improved, and it is still in the process of improving. Until the mid-1980's environmental education materials in the Netherlands

were untested and used by teachers in a random manner. The improvement of the situation was accomplished by the Ministry of Education utilizing geography, biology, physics, and chemistry subjects. NGOs also became involved in promoting environmental education. Attempts were made to construct environmental education as a cross-curriculum subject by putting environmental issues in history and civics courses. In 1989, the Netherlands began to solve these problems by trying to identify the three forms of environmental education: extra-curricular, cross-curricular, and school-based activities focusing on themes taught in existing subjects. The extra-curricular activities were organized by Dutch environmental NGOs, while the other ones were developed by schools themselves. Financial support for this work was received from six government ministries in 1992. Ministry of Education, Foreign Affairs, Transport, Agriculture, and Overseas Development combined to make FI 80 million available to be used for the needs of environmental education. According to Dunlop (1993), who reviewed these programs for OECD, this support was also used for a new type of teacher training that introduced a set of new skills. This example shows that successful development of environmental education demands NGOs' activity and, often, government's involvement.

Geographically and culturally the closest countries to Latvia are the countries of the Baltic region. The exchange of experience, methods, and information between these countries has contributed and should contribute in the future towards the development of environmental education and sustainable development of the region in general.

Latvia is a part of the Baltic region together with such economically and politically advanced countries as Norway, Sweden, and Denmark. These countries each

have their own system of environmental education, but in broad terms the systems are quite similar.

The governments of these three Scandinavian countries provide strong policy to help guide and develop materials for environmental education in their countries. The ministries of education aim to make environmental education interdisciplinary and integrated in all subjects and at all levels of the educational system. For example, the objectives of Swedish environmental policy described in the Swedish Government Bill (1990/1991) are "to protect human health, maintain biological diversity, manage natural resources to ensure their long term use and preserve both the natural and cultural landscapes."

Although the governments strongly support environmental education, the whole process is philosophically and in practice dependent upon local initiatives which interpret local environment needs (Dunlop, 1993). The school curricula offer an appropriate practical basis for developing projects with hands-on experience. The projects also include the collection and analysis of environmental data over several years. School-based activities also include international environmental projects, e.g., an action-oriented project with the goal to create educational approaches to international cooperation in support of sustainable development in the Baltic region (Martin, 1993).

Environmental education courses on the higher education level are offered not only as part of teacher in-service and pre-service education, but also to students and specialists with technical backgrounds, and as part of professional development courses for industry. Besides, the curriculum of teacher training is taking on a more fully developed environmental dimension (Martin, 1993).

A successful development of environmental education is seen as requiring a government policy that promotes environmental education within the whole society. Environmental education has to become relevant and seen as a responsibility of each member of the society.

The fall of the communist regime in Europe changed the political and economical systems of a number of European countries. The education systems of those countries are still in the process of transition. It seems to be reasonable to draw some parallels between Latvia and other post-communist countries to see if lessons can be learned from them.

In both the German Democratic Republic (GDR) and Latvia the socialist education system was regarded as a focal asset of the regime for half a century until the end of the 1980s. It was governed by Marxist-Leninist ideology and organized into a very strict network and stern curricula. East German teachers were under great pressure to be loyal to the socio-political order. This might explain why, unlike the case in Latvia, the universities did not show too much activity during the revolutionary activities of autumn 1989, when the Berlin Wall became open (Mitter, 1992). Similar to the GDR teachers, Latvian primary school teachers were either loyal or afraid of the political agents of the communist system.

In Rolff's (1991) opinion, after the fall of the Berlin Wall, in the GDR there was a period of sudden unpredictable developments that ended in the autumn of 1990, when Länder parliaments (Landtage) started reconstructing the education systems. New administrative structures were attempted at all levels of the education system. During that time criticism of "West German colonialism" became more and more voiced. It

criticized the adaptation of West German systems without taking the existing GDR assets and concerns into consideration. It also suggested that understanding of peoples' frame of mind is necessary to make a successful transition.

Not only the administrative system of education but also the syllabuses and textbooks introduced in the former GDR carried the stamp of the West German counterparts. The adoption of West German text books was causing a problem for GDR students and teachers. West German textbooks and curricula were based on a communicative interaction between teachers and students, and aimed at motivating students to independent thinking and learning, but this orientation confronted East German students and teachers with unexpected requirements, because GDR schools previously were focused on an authoritarian style of instruction, at least as a rule (Mitter, 1992).

The lessons to learn from East Germany experiences are the following: Schools need to be supplied with textbooks and other resource materials designed to take the political, economical, and social aspects of the particular country into account. Teaching methods need to be changed gradually—advancing in relatively small steps from older to newer methods. Borrowed Western materials do not reflect on the past and life-stories of the students and teachers of schools in transition. An extensive teacher in-service education has to be carried out, and the whole teacher education system has to undergo dramatic changes.

In summary, the experiences of the United States of America, the United Kingdom, Austria, the Netherlands, Denmark, Sweden, Norway, and the eastern part of the now united Germany in the field of environmental education can be useful for Latvia,

a country in transition, in developing environmental education system. Experiences of cooperation between schools, non-governmental organizations, and government in disseminating environmental education can be borrowed from Austria, the Netherlands, and the Scandinavian countries. American and English curriculum and educational standards are useful models. Austrian and Scandinavian models of networking among schools, their communities, and individuals could have success in Latvia, since the countries share similar cultural and geographical backgrounds, especially Latvia and the Scandinavian countries. Besides, countries like Sweden, Denmark, and Norway provide extensive technical and educational assistance to Latvia. The lessons learned in Eastern Germany during the unification process could also be useful to a country in transition from communism to democracy. An environmental education system has to be developed by the country itself, by its specialists and people. Sharing of experiences is necessary but blind copying or usage of resource materials developed for students with different backgrounds will not promote the successful dissemination of environmental education and will not be widely accepted in society, which is the ultimate goal of an environmental education that aims at the responsibility of everyone.

Summary of Relevant Empirical Research on Environmental Education

Over the past two decades a wealth of literature on environmental education has been produced. It includes quite a number of pieces of empirical research on

environmental education programs and their outcomes. This section will focus on the research dealing with environmentally responsible behavior as a goal of environmental education.

There is a group of American writers (Sia, Hungerford, Tomera, Hines, Ramsey) who believe that the primary goal of environmental education is the acquisition of responsible environmental behavior. Nevertheless, the analysis of the environmental research articles published in the Journal of Environmental Education in the time period between 1972 and 1982 showed that the curriculums often placed the emphasis on environmental awareness and problem analysis, but did not give knowledge about how to develop strategies for solving environmental problems and taking actions, i.e., problem-solving skills were forgotten. (Tomera, Hungerford & Wilson, 1982).

In order to overcome this deficiency, Sia, Hungerford, and Tomera (1985-1986) designed a study that presented a theoretical framework for environmental behavior prediction. The purpose of the study was to determine the relative strengths of eight predictor variables in predicting responsible environmental behavior. They used 171 adult subjects, members of environmental groups (35-65 years old). A sixteen page, seven section instrument designed by the authors was used for collecting the data. Statistical analysis was conducted. Behavioral scores were pooled and classified as low, medium, or high. ANOVA, multiple regression, intercorrelation, and stepwise regression statistical techniques were used.

The researchers wanted to find out which of the eight possible predictors, derived from the previous theoretical and empirical work, had an effect on behavior, and which of these predictors had the strongest effect: (1) level of environmental sensitivity, (2)

perceived knowledge of environmental action strategies. (3) perceived skills in using environmental strategies, (4) perceived individual locus of control, (5) perceived group locus of control, (6) psychological sex role classification. (7) belief in/attitude towards pollution, (8) belief in /attitude towards technology.

These predictors were explained and defined in a later work of Ramsey and Hungerford (1989). Level of environmental sensitivity refers to a person's empathetic view of the environment. It includes the notion that humans should live in harmony with the environment. The factors that are expected to promote environmental sensitivity are: participation in outdoor activities on a continuous basis, time spent in a pristine environment, and the influence of role models. Perceived knowledge and perceived skills of environmental action refer to the knowledge of and ability to use skills to influence decision making in a democratic society. Individual/group locus of control is an individual's belief of whether one/a group is in control of the situation that demands action. Beliefs about environmental issues are the ideas a person holds to be true about environmental issues.

The statistical analysis of the data showed that all the predictor variables except attitude towards technology were statistically significant ($p<.05$). The best predictors of overt responsible environmental behavior were found to be: (1) perceived skills in using environmental action strategies ($F_{1,169}=89.16$; $p< .0001$), (2) level of environmental sensitivity ($F_{1,169}=77.47$; $p< .0001$), (3) perceived knowledge of environmental action strategies ($F_{1,169}=72.58$; $p< .0001$).

The potency of both knowledge and skill in training students capable of producing a problem-solving and action-taking behavior was indicated also in the studies

done earlier by Ramsey (1981) as well as Asch and Shore (1975). But this study further inferred that environmental sensitivity should be fostered, as it is one of the strong predictors of responsible environmental behaviors. The authors suggest that these predictors need to be addressed in environmental education curriculums and instruction practices.

The authors decided to expand their study of predictors of responsible environmental behavior by doing a meta-analysis of all the studies they could locate in the time period 1971- 1986 which provided empirical evidence on the predictors of such a behavior. The major goal of the analysis was to: (1) identify the variables which the research indicated as associated strongly with responsible environmental behavior, (2) to determine the strength of the relationship between the variables and the behaviors, (3) to formulate a model of responsible environmental behaviors based on the collected data. The primary methodology used was the Schmidt-Hunter meta-analysis techniques (Hines, Hungerford & Tomera, 1986-1987).

The results of the analysis revealed the complexity of the predictors of responsible environmental behavior. They were summarized in a model that included personality factors: attitudes, locus of control, personal responsibility. Besides that, there were also action skills, knowledge of action strategies, and knowledge of issues. In addition, an important role was given to an individual's desire to act that would then lead to responsible environmental behavior. Further, the behavior could still vary dependent on a situation. The fact that the behavior model was so complicated and under constant influence of ever-changing situational factors led the authors to conclude that there is uncertainty present in the prediction of environmental behavior. They identified a need to

concentrate the future research efforts on environmental behavior embracing the complexity of the model instead of isolating the individual components.

This theoretical model was later tried out with middle school students by Ramsey and Hungerford in 1989 (Ramsey & Hungerford, 1989). They designed a methodology and a program called Issue Investigation and Action Training (IIAT) meant for middle school students (Hungerford, 1988). The subjects of the study were seventh-graders, divided in eight groups: four experimental (n=64) and four control groups (n=85). The pre-test showed that the groups were equal on the key variable: overt environmental behavior. The instrument was the authors' questionnaire.

The control groups received the traditional school curriculum training, while the experimental groups underwent the treatment of the IIAT program. The IIAT program consisted of six interdisciplinary modules providing training in the investigation and action skills needed by environmentally responsible citizens.

The statistical analysis of means and variance showed significant difference in means for overt environmental behavior between the experimental and the control groups: F=19.641; individual (F=8.281), and group (F=4.521) locus of control; knowledge of environmental action skills (F= 25.551), and perceived knowledge of action skills (F=11.451). Environmental sensitivity was found to be similar in the experimental and control groups (F=0.834), df=1,6.

The authors concluded that these data tend to establish the cognitive linking relationship between IIAT instruction and subjects' overt environmental behavior. The data concerning environmental sensitivity indicated that IIAT did not directly relate to promotion of affect. The authors concluded that the development of environmental

sensitivity seemed to take place over time and related to experiences in out-of-class settings, which IIAT program did not provide (Ramsey & Hungerford, 1989).

Nevertheless, as was mentioned earlier, affection, feeling, and emotions are an important part of learning. According to Dewey, our intellect cannot exist without our attitudes, feelings, and emotions, because they make us open-minded rather than close-minded, responsible rather irresponsible (Dewey, 1933). Fromm (1977) calls one of the basic emotions, love, the productive orientation, i.e., "the active and creative relatedness of man to his fellow man, to himself and nature." According to Fromm "productive love always implies a syndrome of attitudes; that of care, responsibility, respect and knowledge. If I love, I care—that is, I am actively concerned with the other person's growth and happiness; I am not a spectator, I am responsible, that is, I respond to his needs, to those he can express and more those he cannot or does not express." We could expand this idea from love and care about another person to love and care for one's environment and say that emotion, like love is a basis for care, respect, and actions in response to the environment's needs, that is, for responsible behavior.

A useful model developed by Eiss and Harbeck (1969) shows the union of the affective, cognitive, and psychomotor domains in information processing and action taking. "The affective domain is central to every part of the learning and evaluation process. It begins with the threshold of consciousness, where awareness of the stimulus initiates the learning process. It provides the threshold for evaluation, where willingness to respond is the basis for psychomotor responses without which no evaluation of learning process can take place. It includes values and a value system that provide the basis for continued learning and for most of an individual's overt behavior. It provides

the bridge between the stimulus and the cognitive and the psychomotor aspects of an individual's personality" (Eiss & Harbeck, 1969, pp. 4). The Eiss and Harbeck model illustrates that overt behavior is the response to an environmental stimuli that has been processed by affective, cognitive and psychomotor organismic processors.

Although not explicitly focused on affect of this depth, a study to assess children's ethical and emotional concern about nature was carried out in Germany in 1993 involving 830 children and adolescents (439 females, 391 males) in three age groups: 12, 15, and 18 (Szagun & Mesenholl, 1993). The authors' prepared questionnaires included statements about ethical and emotional attitudes towards nature, unacceptability of environmental destruction, readiness for pro-environmental actions, communications with adults about environmental problems, and concepts of "nature" and "environment." The acquired data were analyzed by ANOVA, MANOVA, and correlation analysis.

The results showed that the children and adolescents' ethical concern about nature was considerable. Adolescents of both sexes and all age groups thought that environmental destruction was most unacceptable because it damages the ecosystem and is immoral. Degrees of agreement to individual sympathy items revealed that children and adolescents feel most for the most suffering creatures, but this is somewhat dependent on situation and the animal's usefulness for humans. The adolescents expressed their wish to use nature for their enjoyment, but the desire for enjoyment of nature was lower than the consideration for preserving nature.

The study found sex and age differences concerning strong emotional relationship between humans and living beings. Females and small children were found to express

stronger emotional relations. Similar findings were detected in a Finnish study with elementary school children (Aho, 1989). This fact was explained by the "sex-typical" values of the culture, where boys are more "tough and unemotional," and by a general tendency in smaller children to bond emotionally strongly to nonhuman living things.

In the summary, the researchers proposed to use the knowledge about emotions and environmental behavior in developing environmental education curriculums. They suggested using somewhat different motivations for boys and girls' pro-environmental behaviors, and giving more importance to ethical questions, in general, if the aim of environmental education is effecting long-term changes in peoples' awareness of nature and the way they treat nature. "If this aim is to be achieved, it is not sufficient to impart knowledge about pollution or even carry out practical ecological projects. It is necessary to reach peoples' deep convictions and their emotions, which partake of ethical values" (Aho, 1989, pp. 43).

Another study on the emotional aspects of environmental awareness combining specific emotions with behavioral tendencies with a cross-national approach was carried out in Germany and Russia in 1995 (Szagun & Pavlov, 1995). The aim of the study was to find out where the differences in environmental awareness between German and Russian adolescents lie. The focus of the study was emotional and behavioral aspects of environmental awareness. Special items of the investigation were the following qualities of emotions—anxiety, anger, sadness, hopelessness, and indifference—as well as willingness to engage in personal pro-environmental activities and political pro-environmental activities. The researchers also looked for cultural, age,

and gender differences. The instrument of the study was the questionnaire developed by the authors. A 4-way MANOVA analysis of data was conducted.

The results showed that both nationalities had a highly emotional attitude toward environmental problems. The adolescents felt anger, anxiety, and sadness but rejected indifference and hopelessness. These results gave evidence against the view that anxiety implies hopelessness about future environmental destruction. It was found that anger, anxiety, and sadness were positively related to willingness to engage in pro-environmental behavior. Age and sex correlation analysis resulted with the same conclusions as the previously described studies in Germany (Szagun & Mesenholl, 1993) and Finland (Aho, 1989). Female adolescents of both cultures expressed stronger emotional feelings and behavioral tendencies. Younger children also showed higher levels of emotions than older ones.

The cross-cultural comparison showed that Germans had stronger emotions about environmental destruction than Russians. Germans felt stronger anger (5.23) about environmental destruction, but Russians stronger anxiety (5.12). Germans (4.51) expressed stronger will to engage in personal pro-environmental actions than Russians (3.78). (The means were measured on a scale from 1 to 6.) These differences were discussed in relation to different political, social, and economical situations in the two countries (Szagun & Pavlov, 1995)

In the previous chapter, which described the experience and status of environmental education in several countries, it was emphasized that each country has a different situation to some extent and that those differences should also be recognized in developing environmental education systems. Physical settings, political context,

economical situation as well as people living around us influence the way we think and act. A study on situation cognition was carried out in Russia and America in 1995 (Torney-Purta & Pavlov, 1995). It involved 31 American and 31 Russian adolescents age 11-17. The aim of the study was to explore the ways in which physical settings, political context, school classroom, adult communities, and peer groups served as situating factors in adolescents' cognition about the environment. The instrument was the authors' constructed open-ended written questionnaire, which asked for responses about the most important environmental problems, their causes, and their solutions. The descriptive and correctional analysis of the data as well as analysis of variance by gender and location were carried out. The results showed considerable similarities between American and Russian adolescents, but Americans were more descriptive, i.e., used more words, in writing about problems. More Americans (41.9%) than Russians (16.1%) discussed environmental issues at school. More Russians (67.7%) than Americans (16.1%) think that government does "little or nothing" to help the environment. More Russians than Americans believe that both communities and people in general do not care about environment. Besides, Russian adolescents reported themselves being more pessimistic about the future of environment than Americans. (51.6% vs. 27.6% respectively.) Discussions of environmental issues with friends seem to result in optimism for Americans but pessimism for Russians.

To summarize the Russian-American study, it needs to be recognized that the political, social, and economical context do influence a person's cognition—the way one thinks about environmental problems. Countries might be similar, but they are not

identical, and, therefore, environmental education systems or their contents should be developed specifically for each country.

In summary, the analysis of empirical research on environmental education and environmentally responsible behavior shows that the most important predictors of environmentally responsible behavior are the following: knowledge about the environment and its processes, action-taking skills to solve environmental problems or prevent them from happening, and environmental sensitivity. Environmental sensitivity is strongly related to motivation or initiative for action. It is not enough to teach students about the environment, it is important to teach them to be willing to take actions as well as how to do it.

CHAPTER II

Methodology for This Study

This thesis is an exploratory work that will analyze and compare the environmental education experiences and the standards of environmental education for primary schools in Latvia with those of a group of European countries, especially the United Kingdom and Denmark, and the United States of America, based on their environmental problems and social context. Among the aspects to be compared are the environmental problems of the countries, the philosophy of environmental education, the goals of the environmental education evolving out of the specific political, economical, cultural situation and the state of the environment in these countries. Also, the knowledge for students to acquire, including the knowledge about the environment and its processes, perceived action-taking skills to solve environmental problems or prevent them from happening and environmental sensitivity related to motivation or initiative for action. Besides that, implied pedagogical methods used in Latvia and other countries are analyzed and compared to reveal how the countries try to achieve their goals of environmental education and promote more environmentally responsible, ethically and emotionally concerned behaviors of their people. The expected students' attainments are compared and the assessment strategies listed. The information is summarized in a comprehensive matrix (see Table 9).

In order to be able to conduct this analysis and comparison, the materials on environmental education of Latvia have been searched and gathered. The search of materials originated as a request made to the author's friends and relatives who are working as teachers or are otherwise related to the education system of Latvia. The further collection of materials was guided by the references given in the originally gathered sources. More information on Latvia was obtained by interviewing three Latvian educators involved in the development of civic education and environmental education for primary schools, colleges, and universities.

A survey of current literature was conducted to identify the environmental education systems, standards, and curriculums of other countries that could be of value for the developing environmental education in Latvia. Catalogues of various libraries as well as the online catalogue of ERIC were searched using phrases like: environmental education, outdoor education, science education, environmental education guidelines, environmental education standards, environmental education curriculums, environment and public awareness. These phrases were combined with the names of the following countries: Latvia, the United States of America, the United Kingdom, the Netherlands, Austria, Germany, Denmark, Sweden, Norway, and Europe as a region including those and other countries.

More interviews with English, American, and Danish environmental specialists and educators were conducted. Telephone calls to ministries of education of the United Kingdom and Denmark as well as the headquarters of the NAAEE were placed in order to gather information on the environmental situation and environmental education in these countries.

The analysis and comparison have been incorporated in a proposal for the upcoming Standards of Environmental Education for Primary Schools in Latvia. The proposal includes suggestions divided into suggestions for action and suggestions for further research.

Definitions.

Philosophy—the principle(s) underlying environmental education.

Goal—the object of environmental education.

Objectives—knowledge, skills, and attitudes towards which thought, action, and beliefs concerning the environment is directed.

Strategy—the way of planning environmental education.

Methods—the way of carrying out environmental education.

Entitlement—students' attainments in environmental education. (British English word 'entitlement' is used as suggested in the National Curriculum Guidance 7 of the UK (NCC, 1990) to include all the conditions and qualities giving a right to students to act on behalf of the environment.

Assessment—appraisal of students' attainments in environmental education.

CHAPTER III

Environmental Situation and Environmental Education Standards and Guidelines Compared

Latvia

First Attempts to Define Environmental Education

The political changes in Latvia at the beginning of the 1990s allowed the non-governmental organizations concerned with environmental issues to start urging the Latvian schools to include environmental education in their curriculum. The Center for Environmental Science and Management Studies (CESAMS) started preparing a variety of environmental education programs for youth. Although CESAMS' main audience was high school and university students, age 16 and up, it also recognized the need for reforming the primary school system by adding environmental education. In 1994 CESAMS proposed an environmental strategy and system for changing schools taking into account the specific situation of Latvia (Ernsteins, 1994). The main author of the proposal was the head of CESAMS, Raimonds Ernsteins. He suggested the integration of scientific, socio-political, and educational approaches towards environmental

education not only with the regard for the specific transition situation of Latvia, but also its ethno-cultural roots and developments.

Latvians are famous for their folklore traditions that have been established and preserved for several hundred years. Among the most significant part of Latvian folklore are the folksongs that are still taught to Latvian children in many homes and in all schools. There is a song for almost any life situation. Many of the songs teach how to live in harmony with the environment, how to care for the environment, and how to be protective of it. The main idea transmitted by the songs is that all inanimate as well as animate beings have feelings and they can feel pain the same way as we humans. It is unacceptable to hurt anyone or anything.

Ernsteins was not so clear about what particular methods for achieving the goals of environmental education Latvian schools should use. He suggested trying both the interdisciplinary and multidisciplinary approach, i.e., supplementing currently existing subjects with environmental issues, as well as introduction of special environmental education subjects into the school curriculum. Ernsteins' proposal is designed to be a stepwise environmental education system that includes the grades one to twelve. He considers the education of teachers and the preparation of resource materials for teaching environmental issues to be among the methods to achieve the goal of environmental education in providing the students with environmental knowledge, skills, and attitudes.

Ernsteins talked about environmental education strategy and systems for changing schools, including development steps and approaches in Latvia in a conference on environmental education, "European Environmental Future—CEEE '94", in 1994

(Ernsteins, 1994). His speech is published in English by the Ecological Center at University of Latvia. It is a document of eight pages and specifically gives suggestions for introducing environmental education in the primary and secondary schools of Latvia. Other documents prepared by CESAMS that are available are either overviews of the development of environmental movements in Latvia or suggestions for establishing institution within the University of Latvia that would provide an MA degree in environmental education or environmental management studies. I have summarized Ernsteins' suggestions concerning primary school and secondary school environmental education in Table 1.

Table 1. The environmental education strategy, system for changing schools in Latvia.

Philosophy	Integration of: scientific, socio-political, and educational approaches with a regard for the specific transitional situation of Latvia, its ethno-cultural roots, and recent development.
Goals	Providing students with environmental knowledge, skills, and attitudes.
Strategy	Starting with the local and move towards global environmental problems.

Methods	• supplementing current curriculum with environmental issues
	• introducing special environmental education subjects in the following manner:
	  • Grades 1-4: use the existing Nature Studies
	  • Grades 5-6: implement new integrated subject matter
	  • Grades 7-9: implement new integrated subject matter and optional specialized subjects as: physics, chemistry, geography, and biology
	  • Grades 1-12: implement optional interdisciplinary subjects depending on the students' interests and school's specialization
	• exposure to environment through out-of-class projects
	• creating a school that is friendly towards the environment and health
	• developing pre- and in-service training for environmental educators
	• designing more resource materials for use in environmental education

Environmental Education for Elementary Schools

A different audience was addressed by Karule (1995) in her suggestions about methods for the study of environment and nature. The set of the suggestions were meant for 1st to 4th graders. These suggestions were approved by the Republic of Latvia Ministry of Education and Sciences, the Center of Content of Education and Examination in 1995. They were to be offered as useful guides for the schools or individual teachers who decided to incorporate environmental education in their teaching.

These methodological suggestions are geared specifically for younger children and therefore mainly tackle the children's ability to understand the basics of the environment they live in. Emphasis is put on the affective evaluation of the environmental phenomena, and the skills for exploration, imagination, and reasoning, echoing a theme noted in the review of empirical research. The most important strategy for teaching environmental education for small children is teaching about environment by beginning with the local and moving towards the global environmental issues. The same principle was proposed by Ernsteins to be used not only with young children but also with all the students in primary and secondary schools.

The idea of learning about the environment starting with local issues and continuing with a more global approach to environmental problems and issues seems to be an approach supported by many Latvian environmental educators. This same approaches is also seen in the "Guidelines for Environmental Education in Primary Schools" prepared in 1996 that is discussed later in this chapter.

Karule's methodological suggestions for 1st to 4th grades are collected in a 53 page booklet "Study of Environment and Nature" (1995). The text is in Latvian. I have translated and summarized the main points that concern the philosophy, goals, objectives, strategies, methods, and evaluation of environmental education in Table 2.

Table 2. Study of Environment and Nature. Methodological suggestions for grades 1 - 4.

Philosophy	The development of society and nature depends on peoples' ability to reason. The understanding about people as a part of nature has to be built in early childhood.
Goals	Give a holistic perspective of the world.
Objectives of Environmental Education	**Cognitive**: Understanding about • natural phenomena, their basic features • relationship between inanimate and animate nature • human/nature interdependence. **Affective**: sensitivity towards the environment, the relations between people and nature; **Behavioral**: nature-protective behavior. **Skills**: environment exploration.
Strategies	• approaching environmental education systematically • investigating environmental phenomena using all the senses • starting with the local and moving towards the global issues
Methods	• direct observation and experiments in the environment • consolidation of the knowledge by using modeling, motion and role plays, ecological games, individual and team work • integration of the acquired knowledge
Evaluation of attainments	• through the direct observation of the students' overt behaviors • by analyzing the students' self-evaluating reports

Government in Relation to the Environmental Situation and Education

The political changes in Latvia brought reformation not only to the non-governmental organizations but also to the governmental structure, its functioning, and

the policies. The national environmental policy of Latvia underwent a thorough reevaluation and change.

The National Environmental Policy Plan (NEPP, 1995), accepted by the Cabinet of Ministers of the Republic of Latvia on April 25, 1995, includes a chapter on environmental education specifying the goals of environmental education as well as methods for achieving them. The plan also describes and analyzes the environmental situation and problems in Latvia.

Because the industrialization process was concentrated in a few cities of Latvia during decades before 1990, there are a number of preserved pristine nature areas as forests, meadows, and swamps in Latvia. In these areas there are rich animal and plant populations and low background pollution levels. Besides, there are vast undeveloped beach areas on the coast of the Baltic sea.

Unfortunately, there are more environmental problems in Latvia than the positive features described above. The majority of these problems are manifested in the largest industrialized centers, transportation crossroads, and territories abandoned by the Russian army. The group of specialists that overviewed and analyzed the priority of environmental problems in Latvia in 1995 identified forty-five problems. The following were found to be of priority importance: transboundary pollution, eutrofication of water courses and the degradation of aquatic ecosystems, risks caused by economic activity, impact of wastes on the environment, impact of transportation on the environment, depletion of biodiversity, landscape degradation, inefficient use of natural resources, and low quality drinking water (NEPP, 1995).

The National Environmental Policy Plan acknowledges that environmental education is "one of the main instruments for raising the public's awareness, both within the government and parliament, as well as within the general population" (pp. 25), and sets the following goals for environmental education:

1. Promote sustainable public development—balance the spiritual and material needs and interests of society.
2. Increase public responsibility and active involvement in environmental protection and remediation.
3. Educate the general public about environmental issues by increasing its level of knowledge and broadening self-education possibilities.
4. Involve responsible organizations, education institutions, experts, and activists in the process of environmental education, and support local initiatives.

As the method for achieving these goals the National Environmental Policy Plan suggests the creation and introduction of programs that provide environmental knowledge for students at schools and higher education institutions whose specialty is not directly related to environmental studies. The second important method is careful planning and preparation of environmental specialists. And the third is in-house training of officials at all levels on environmental issues.

Although the National Environmental Policy Plan does not explicitly mention the role of schools and the importance of educating children, it encouraged the different non-governmental environmental organizations as well as other institutions that previously had started working on the preparing proposals for the environmental education system in the schools of Latvia.

Guidelines for Environmental Education in Primary Schools

About the Author of the Guidelines.

The work of a non-governmental organization, the Children's Environmental School (CES), resulted in an important outcome: the CES gathered the knowledge of Latvian environmental educators, including the materials prepared by CESAMS and Karule, as well as some environmental education knowledge from abroad, e.g., Scotland, Sweden, and Denmark, and devised the "Guidelines for Environmental Education in Primary Schools" of Latvia. The Guidelines were approved by the Ministry of Education and Science, the Center of Education Content and Examination, in 1996 to be used in the primary schools. The Guidelines are neither mandatory teaching curriculum nor standards, however.

Status of the Guidelines.

The Guidelines can be viewed as a draft of the standards for environmental education that are still in the process of preparation by the CES. The Ministry of Education and Science encourages the schools to use the Guidelines but does not mandate it. The Guidelines formulate the framework for environmental education without giving strict rules about how to achieve the goals and objectives described. Thus, schools and teachers have freedom in choosing how exactly the guidelines are going to influence their work and the content of the materials covered in classrooms.

Philosophy.

The philosophy of the Guidelines is the integration of three approaches—scientific, social, and educational. There are two basic tenets: (1) interdisciplinary and multidisciplinary environmental education, which means making use of the current curriculum standards for the various school subjects and supplementing them with environmental issues, thus forming a cross-curricular environmental education system; (2) integration of natural sciences, social sciences, and the humanities.

Cross-curricular approach.

The Guidelines suggest approaching environmental issues as a cross-curricular theme. It means that environmental studies are not concentrated into one core curriculum subject but, instead, are incorporated into the existing core subjects.

Natural sciences provide the students with factual material, hands-on experiences, and observations. Mathematics and computer science develop the students' ability to process, analyze, and interpret the information and collected data. Social sciences form the understanding about the relation between the social and natural environment. They encourage the students to become citizens who assume the responsibility for the quality of the environment, and are aware of their abilities to act upon the improvement of the environment both directly and through group or individual political activity.

Native language and literature develop the students' ability to express and support their opinions concerning environmental issues. Foreign languages give the students the possibility to get acquainted with the environmental situation and problems

in the world and offer an opportunity for comparison. Students are encouraged to read original materials, like magazines and newspapers. Besides, the knowledge of a foreign language allows the students to communicate to people from other countries, thus forming a better understanding about different regions of the world, the interdependence of the regions, and the transboundary character of the environmental problems.

Arts and music acquaint students with artists and their works inspired by the beauty of nature. They teach creativity in expressing feelings about the environment. On the other hand, housekeeping and crafts teach the students the practical application of their theoretical knowledge to everyday situations in order to use environmental resources wisely.

One result of changing the education system of Latvia is the introduction of health studies in the school curriculum. Health studies also make a contribution to environmental education. In the health classes students learn and form their understanding about the relation between the quality of the environment and human health.

Goals.

The goal that "The Guidelines for Environmental Education in Primary Schools" set for environmental education in the primary schools in Latvia is to provide the students with the capability to analyze environmental events and make decisions that would increase the quality of the environment and the well-being of the society. It means involvement in a concrete environment and readiness to make changes if it becomes necessary (CES, 1996).

Objectives.

The specific objectives that environmental education seeks include cognitive objectives which encompass acquiring knowledge about the environment, analytical and critical thinking about ecological and social processes, issue understanding, and decision making within a given environment. The Guidelines consider affective involvement of the students in environmental issues to be as important as their knowledge about the issues. The students have to be emotionally involved with the environment, they need to feel belongingness to the environment where they live, and they need to develop a positive environmental attitude. It is not sufficient to have knowledge or understanding. The students are also required to acquire a number of knowledge application skills, skills in using practical environmental strategies, and team work, thus developing their ability to listen to various viewpoints, discuss issues, formulate sound solutions based on the analysis of all the aspects of an issue proposed by the different parties of the work team. The ability of a student to undertake concrete steps to preserve and improve the environment is the most important behavioral objective of environmental education for primary schools in Latvia (CES, 1996).

Strategy and stepwise approach.

To foster the students' interest and involvement and to promote the development of more responsible environmental behavior, the environmental strategy for the primary schools of Latvia is based on three elements: study **in** the environment, **on** the environment, and **for** the environment. This strategy reflects the three threads of environmental education reinforced by an important conference on environment held in

Tbilisi (UNESCO, 1977). The three threads are (1) basic knowledge and understanding about the environment, (2) positive attitudes, values, and actions for environment, and (3) inquiry, investigation, hands-on-experience, using the environment as a resource.

Study **in** the environment stimulates the students' abilities to use the acquired knowledge, to solve problems, and to take competent decisions. This strategy is aimed at expanding the students' experiences and developing their knowledge acquisition and action taking skills. It provides the students with direct experience about themselves in the world thus forming the sense of belonging to one's environment.

Study **on** or **about** the environment gives the students knowledge about the environment, and forms the understanding of ecological and social processes in the environment. This strategy is used to achieve the important cognitive goals of environmental education.

Study **for** the environment forms a critical attitude towards environmental issues and willingness to live in harmony with the environment, as well as spurs the students towards direct action and involvement, giving the students a chance to get involved in real life environmental protection, and through this practical action to clarify and examine their attitude towards the environment. This strategy helps to achieve the affective and behavioral objectives of the environmental education program.

The environmental education system is developed to proceed stepwise or stagewise. It includes the following cycles or stages: grades 1-3, grades 4-6, grades 7-9. The younger students are first exposed to local environmental issues, then they proceed to acquiring knowledge about the relation between the regional and global environmental issues and their interdependence. This principle means revealing the content of

environmental education starting with the local and concrete experience of nature and moving towards global environmental processes, issues, and problems.

Methods.

There are a number of methods that are proposed by the Guidelines. They include various methods for achieving all the objectives of the Guidelines. The list given here is not a direct translation but rather an interpretation of the ten listed methods given in the Guidelines. They are the following:

1. Devoting equal attention to the natural environment and human-created environment with its economic, political, culture-historical, and ethical factors. (This method is in accordance with the philosophy of the Guidelines, which postulates the integration of three approaches—scientific, social, and educational.)
2. Giving the students the opportunity to investigate environmental events and objects from different points of view, thus forming a more complete understanding of them.
3. Using various pedagogical methods to accommodate the learning styles or needs of all the students and solidify their environmental knowledge.
4. Balancing the process of theoretical learning and practical experience in the environment to promote and maintain the students' willingness to act on the behalf of the environment.
5. Diversifying the teaching methods to keep the students' attention and their active participation.
6. Providing the students with hands-on experience. Using various resources and information in the study process.

7. Judging the urgency of environmental issues, allowing student participation in the selection of the issues.
8. Using team and pair work in problem discussion to develop the students' abilities to cooperate and be tolerant towards different opinions.
9. Presenting diverse opinions about an environmental problem.
10. Putting environmental education into practice in all forms of school life: during extracurricular activities, organizing the school's economy, creating democratic relations among everyone in the school, arranging the school's interior. (Environment has to be of concern not only for certain school subjects but also for the entirety of school life by saving natural resources, arranging school interiors, having good relationship and communication among everyone in the school, keeping high moral standards in the school and outside it.)
11. Participating in environmental activities of the community (youth marches, letter writing to environmental protection institutions, recycling, energy saving, and cleanup campaigns) (CES, 1996, pp. 6-7).

The above described methods not only guide the student and help the teachers to achieve the goals and the objectives of the environmental education, but also serve as the means of self-evaluation for the teachers. It is suggested in the Guidelines to use the question format of the statements from 1 to 11 described above. For example, statement 8 is presented the following way: Is team and pair work used often enough to develop the students' abilities to cooperate and be tolerant towards different opinions?

Assessment and entitlement.

The evaluation of the students' knowledge, skills, and attitudes is a combined effort of a number of teachers who are involved in teaching environmental issues in their subjects or who organize hands-on-experiences or environmental projects for the students. More thorough evaluation takes place at the end of grades 3, 6, and 9. The emphasis is put on the students' ability to practically apply the knowledge about environmental issues. The markers of the effectiveness of the environmental education are: students' interest and active participation in the study process, students' understanding about the local environment, and ideas about the improvements needed. The teacher's tool for evaluation is her observations of each student's actions and attitudes. The quality of the evaluation therefore greatly depends on the teacher's competence and professionalism (CES; 1996).

The Guidelines give a statement of proposed entitlement for students in environmental education. By the age of 16 all students should have had educational experiences, ranging from local to global issues, that enable them to:

1. Know and understand (a) natural processes and impact of human activities on the environment, (b) the present ecological situation in Latvia and the world, being able to recognize the problems and suggestions to solve them, (c) that every individual's actions affect the environment, and (d) that the environment's future depends on today's decisions.
2. Have skills and experiences in (a) persuading others about environment friendly actions, (b) setting clear goals for action, (c) using various information sources,

organizing, analyzing, interpreting information and identifying the essential, and (d) working on problem solving and decision making in groups.

3. Have (a) a personal positive attitude towards local and global environment which is exhibited by practical actions, (b) a sense of relation between the past and future, (c) a critical attitude towards the received information, and (d) an ability to explain one's own viewpoint.

In summary, the "Guidelines for Environmental Education in Primary Schools" (as interpreted by this author) have been condensed in Table 3. As in other summary tables, the goals, objectives, strategies, methods, and evaluation of effectiveness of environmental education have been pointed out. The Guidelines are more comprehensive than other previously described proposals for environmental education. They also include specific content areas for different traditionally taught subjects that allow the inclusion of environmental issues in those subjects. Finally, they introduce the idea that the student is entitled to education that will benefit both the society and the individual.

Table 3.The summary of the environmental education guidelines for primary schools.

Philosophy	Environmental education is a part of a wide movement which promotes sustainable public development.
Goals	Capability to analyze environmental events and take decisions that increase the quality of environment and the well-being of society.
Objectives	**Cognitive**: knowledge, understanding, analytical thinking, decision making. **Affective**: positive emotional involvement with the environment, belongingness to the environment where one lives. **Behavioral**: concrete steps to improve the environment. **Skills**: knowledge application, practical strategies, team work.
Strategies	Study **in** the environment Study **on** the environment Study **for** the environment
Methods	• equal attention to natural and human-created environments with their economic, political, culture-historical, and ethical factors • investigation of environmental events from different aspects • pedagogical methods to accommodate the needs of all the students • balance of theoretical learning and practical experience • teaching methods to keep the students' active participation • hands-on experience • student participation in issue selection • team and pair work in problem discussion • diverse opinions about an environmental problem • concern for environment in all forms of school life • environmental activities of the community
Entitlement	• Understand natural processes, impact of human activities on the environment; present ecological situation, solutions for problems. • Have skills in persuading others about environment friendly actions; using various information sources, organizing, analyzing, identifying the essential; working on problem solving in groups. • Have personal positive attitude and own view on environment exhibited by practical actions; critical attitude towards the received information.
Assessment	Assessment tool is observation. The effectiveness markers are: • students' interest and active participation in the study process • students' understanding about the local environment • students' ideas about the improvements that need to be done.

Summary

This chapter described the proposals for environmental education in primary schools as well as secondary schools in Latvia that are available to this researcher at the time of this writing (Summer, 1997). They include the general strategical environmental education plan described in the National Environmental Policy Plan, a system for changing schools devised by Ernsteins, methodological suggestions for environmental education in the elementary school prepared by Karule, and a comprehensive plan—the guidelines for teaching environmental education in the primary schools in Latvia prepared by the Children's Environmental School.

Many aspects of these documents overlap, and some of the same ideas are expressed in a more concentrated way in one of the documents than in the others. All the documents express the same overall philosophy of environmental education, which means the integration of the scientific, socio-political, and educational approaches into interdisciplinary and multidisciplinary environmental education and which makes use of the current curriculum standards for the existing school subjects and supplements them with environmental issues to form a cross-curriculum environmental education system.

All the documents have similar goals for environmental education. They can be summarized the following way: Provide the students with environmental knowledge, attitudes, and skills that would promote sustainable development in order to increase the quality of the environment and the well-being of the society. This means to balance the needs and interests of the society, as well as increase the students' responsibility and active involvement in environmental protection and remediation.

The objectives of the different proposals are also quite similar. They all recognize the importance of the cognitive objective, which means knowledge acquisition, analytical thinking, issue understanding, and decision making. The affective aspect of environmental education is seen to be as important as reasoning. Affective objectives include emotional involvement with the environment, sense of belonging to the local environment, and positive environmental attitudes.

Besides the cognitive and affective objectives, there are a number of skills that the students are expected to acquire in their environmental education process. They need to learn how to apply their knowledge, how to carry out practical environmental actions, and how to organize and arrange the environment. Besides, students need to learn how to work in a team, because environmental protection would not be sufficient with only individual environmentally responsible behaviors exhibited separately by each student. It needs coordinated efforts by many people.

The common strategy for environmental education mentioned in these documents is the principle of revealing the content of environmental education starting with the local and moving towards global issues. The Guidelines also differentiate between the strategy of study **in** the environment, **on** the environment, and **for** the environment. Some difference is found in the stepwise approach to teaching environmental education as described in the "Methodological Suggestions" and the Guidelines. The "Methodological Suggestions" describe recommendations for grades 1 to 4, while the Guidelines indicate the first step as including grades 1 to 3.

There also are valuable points mentioned in some of the documents that have not been in the others. For example, Ernsteins recognizes the importance of the specific

situation of Latvia that needs to be taken into the account when creating the environmental education system, curricula, and the programs. He also urges educators not to forget the ethno-cultural roots of Latvians, as it is an important asset of education.

Among the methods for achieving the goals of environmental education given by the National Environmental Policy Plan of Latvia and the strategy for changing the schools prepared by Ernsteins are developing pre- and in-service training for environmental educators and the designing of resource materials for use in environmental education. Although the plans and guidelines of environmental education are very good, their practical implementation is lacking. It is lacking due to the facts that teachers do not have sufficient training in how to approach cross-curricular themes, there are few environmental education materials in Latvian, and the existing materials often are too expensive for schools.

The methods for working specifically with the students are similar in the mentioned documents. The Guidelines have well elaborated and very detailed descriptions of all the methods. The other documents are less specific. Balance between the theoretical and practical learning as well as balance between the studies about natural and built environments are among the main methods. New and important teaching methods for Latvia's democratization process include dialogue between teacher and students and allowing students' participation in the selection of activities and issues. Another method is using team and pair work in problem discussion to develop the students' abilities to cooperate and be tolerant towards different opinions.

This approach is also a relatively new way of learning in Latvian schools. Until the beginning of the 1990s the teaching methods employed were more authoritarian and

did not use problem discussion as means of teaching. Team work and discussions are new kinds of approaches that still need to be accepted by many of the teachers who still are more comfortable in the classrooms if they can be the gatekeepers of knowledge.

Among the new teaching methods that have appeared because of the new political developments in Latvia is presenting diverse opinions about an environmental problem. For example, if it is a problematic issue that concerns the environment, students should be able to understand the opinions of those who want to leave the situation as it is, as well as of those who suggest dealing with the problem in one way or another.

The last two important environmental education methods in Latvia are: putting environmental education into practice in all forms of school life and participating in environmental activities of the community, like youth marches, letter writing to environmental protection institutions, recycling, energy saving, and cleanup campaigns.

Only two of the documents, namely "The Guidelines of Environmental Education for the Primary Schools" and the methodological suggestions by Karule, mention the evaluation of students' achievement. The markers of the effectiveness of the environmental education are: students' interest and active participation in the study process, students' understanding about the local environment, and their ideas about the improvements that are needed. The evaluation of the acquired objectives and goals is to be assessed by direct observations of the students' overt behaviors as well as by analyzing the students' self-evaluating reports. This evaluation approach differs significantly from evaluation in other subject areas, where the main method used is a grading of written or oral reports delivered by students.

The two mentioned documents also give their lists of entitlements. Both documents outline entitlements for the elementary school students. The Guidelines describe entitlement for all students up to age 16. Both of them are founded on knowledge, understanding and skills. In order to be able to compare Latvian experiences in the field of Environmental Education Standards with those of other countries, the Latvian experience at all levels of education is summarized in Table 4.

Table 4. The summary of the Latvian environmental education guidelines.

Environmental Problems	1) Transboundary pollution, 2) inefficient usage of natural recourses, 3) degradation of water ecosystem, 4) low quality drinking water, 5) accumulation of waste, 6) depletion of biodiversity, 7) landscape degradation.
Philosophy	Integration of scientific, socio-political, and educational approaches into interdisciplinary and multidisciplinary environmental education. Environmental education is a tool for promoting sustainable public development.
Goals	Provide the students with environmental knowledge, attitudes, and skills, that • Increase the quality of the environment and the well-being of the society by promoting sustainable development. • Increase the students' responsibility and active involvement in environmental protection and remediation.
Objectives	**Cognitive**: knowledge acquisition, analytical thinking, issue understanding and decision making. **Affective**: positive emotional involvement with the environment, belongingness to the local environment. **Behavioral**: undertaking concrete steps to improve the environment. **Skills**: knowledge application skills, skills in using practical environmental strategies, team work skills.
Strategies	Study **in** the environment; study **on** the environment; study **for** the environment.
Methods	• Give equal attention to natural and human-created environment. • Balance the process of theoretical learning and practical experience of the students. • Judge the urgency of the environmental issue. Allow student participation in the selection of the issues. • Use team work in problem discussion. • Present diverse opinions about an environmental problem. • Put environmental education into practice in all forms of school life. • Participate in environmental activities of the community.
Assessment	Teacher's tool for evaluation is observation. The markers of the effectiveness of the environmental education are: students' interest, active participation, understanding about the environment, and ideas about improvements.
Entitlement	• Know and understand natural processes, impact of human activities on the environment, present ecological situation, problems and their solutions, that future depends on today's decisions. • Have skills in persuading others about environment friendly actions, using information sources, organizing, analyzing, interpreting information and identifying the essential, working on problem solving in groups. • Have a personal positive attitude towards environment exhibited by practical actions, have a critical attitude towards the received information and the ability to explain one's own viewpoint.

The United Kingdom

Environmental Situation in the UK Compared to Latvia

The United Kingdom is a country with high concern for environmental issues and well elaborated environmental education. Certain aspects of the UK environmental legislation and environmental education go back as far as hundred and thirty years in history, when the large cholera outbreaks took place. In the 1860s the first public health legislation and system was set up, which promoted a holistic approach to issues, including health, disease, housing, environment, pollution, etc. Since then, there have been people educated as environmental and health specialists. Due to this historical background and the increasing interest and concern for environment in the modern society of the UK, environmental education has been given considerable attention. The experiences of the UK in environmental education, as well as similarities in quite a number of environmental problems between the UK and Latvia, can serve as an asset for designing programs of environmental education for Latvia.

The environmental problems of Latvia have been previously discussed and they are listed in National Environmental Policy Plan for Latvia (1995). The list of environmental problems of the UK have been obtained during an interview with Glen Armstrong, who is a the Head of the Environmental Review Unit in International Finance Corporation (IFC).

Both countries have water conservation problems that need to be addressed in part by involving the younger generation in more efficient use of water. In England the lack of water is caused by intensive economic activities as well as by a changing climate, which has brought less rain to certain areas of England. Environmental problems such as deforestation, destruction of wildlife habitats, depletion of biodiversity, landscape degradation, and inefficient use of natural resources are characteristic of both the UK and Latvia. In both countries there is negative impact on the environment due to inappropriate waste disposal and lack of recycling, as well as heavy traffic in the big cities. Water quality is not a problem in the UK, but it is an important issue in Latvia. This is in part because the UK does not suffer as much from transboundary pollution as Latvia due to its geographical position. It is an island detached from the European continent and therefore getting less exposed to pollutants coming from other countries.

The National Curriculum Guidance 7 Compared to Latvian Documents

Cross-curricular approach.

The National Curriculum Guidance 7 established under the Education Reform Act 1988, is responsible for the development and monitoring of the National Curriculum. It is required to include environmental education as a compulsory cross-curricular theme. This means that environmental education is an interdisciplinary subject that spreads across the whole school curriculum (Palmer, 1994).

Some people see the fact that environmental education is a cross-curricular theme and not a separate subject as a problem. In an OECD (Organization for Economic Cooperation and Development) publication on lessons from environmental education in industrialized countries, J. Dunlop warned that the dominance of the subjects in the core curriculum might leave school administrators and teachers insufficient time for planning and delivering appropriate discussions of environmental issues, which, by their nature, are organizationally demanding (Dunlop, 1993).

Curriculum Guidance 7 (NCC, 1990) prescribes environmental education to be taught through the Attainment Targets (AT) and programs of study of science, technology, geography and history. The most relevant Attainment Targets are the following: AT1 Exploration of science; AT2 The variety of life; AT3 Processes of life; AT5 Human influences on earth; AT6 Types and uses of materials; AT8 Explaining how materials behave; AT9 Earth and atmosphere; AT13 Energy; AT17 The nature of science.

In Curriculum Guidance 7, there are seven areas of knowledge and understanding that are identified as worthwhile for use as subject-based topics to discuss environmental issues. These are: (1) climate, (2) soils, rocks, and minerals, (3) water, (4) materials and resources (including energy), (5) plants and animals, (6) people and their communities, and (7) buildings, industrialization, and waste. For each of the topics illustrated in Curriculum Guidance 7, links with National Curriculum subjects: English, mathematics, science, geography, history, art, modern foreign languages, music, technology; are identified. (The same kind of approach is also taken in the Latvian guidelines). For each of those subjects there are specific sets of achievement targets.

Philosophy.

The aim of environmental education is to increase public awareness of environmental problems, as well as possible solutions, and to lay the foundations for a fully informed and active participation of the individual in the protection of the environment and the prudent and rational use of natural resources (NCC, 1990).

Goals.

The goals of environmental education, as stated in the National Curriculum Guidance 7 and the Latvian Guidelines are very similar: to provide opportunities for students to acquire knowledge, values, and attitudes that are needed to protect and improve the environment, thus promoting the long-term goal of improving management of the environment and promoting satisfactory solutions to environmental issues. (See the summary of environmental education as described in the National Curriculum Guidance 7 in Table 5.)

Objective.

The objectives of environmental education in the two countries are for the most part similar. Students are expected to develop knowledge and understanding of the natural processes which take place in the environment, the impact of human activities on the environment, different environments (past and present), various environmental issues such as acid rain, pollution, etc., and the environmental interdependence of individuals, groups, communities, and nations. The emphasis is on how human lives are dependent on

the environment and the importance of effective action to protect and manage the environment.

The National Curriculum Guidance 7 lists a number of objectives that the Latvian Guidelines do not, for example, the importance of planning, design, and aesthetic considerations concerning environmental issues. Besides, Latvian students are not expected to learn about local, national, or international environmental legislation, and the conflicts that can arise about environmental issues. During my interview with Jolanta Guza, a representative of the CES, one of the persons who prepared the Guidelines, I pointed out this issue. She responded that, "At this moment environmental education is pure environmental, no political involvement at all. It is wrong, but it can be explained by the fact that Civic Education and democratic issues in Latvian schools appeared only two years ago. Besides, people are more concerned with economic problems than political problems right now" (Interview with Guza, 1997). People are more concerned about working to improve their own financial situation than becoming involved in policy-making, even if it concerns their own well-being in a healthier environment. Money in peoples pockets is more touchable than clean air or water. Besides, people in Latvia have had decades of unfortunate experience when an individual's political actions usually resulted in some type of imprisonment. This causes a certain amount of caution and reserve when it comes to political activities.

The attitudes to be promoted by environmental education in the two countries are also similar: appreciation of, care and concern for the environment, independence of thought on environmental issues, and a respect, tolerance and open-mindedness towards the beliefs and the opinions of others. The only issue not mentioned in the Latvian

Guidelines, but included in the Guidance 7, is a respect for evidence and rational argument.

As in the case of knowledge and attitudes, the skills to be developed through environmental education in the two countries are also similar. They are the following: communication, numeracy skills, study skills, problem-solving skills, personal and social skills, and information technology skills.

Strategy.

The strategies for achieving the goals and objectives of environmental education are essentially identical, with the exception of differences in wording. It is suggested that in order to carry out environmental education and include it in the curriculum, three interlinked components have to be taken account of: (1) education **about (on)** the environment, which means developing the basic knowledge and understanding of the environment, and understanding about values and attitudes; (2) education **for** the environment, which means encouraging the students to develop positive values, attitudes, as well as positive action for the environment; (3) education **in** or **through** the environment, which uses the environment as a resource for learning, with emphasis on investigation and students' hands-on experiences to develop skills of investigation and communication.

Stagewise approach.

Differently from Latvians who in their Guidelines suggest approaching environmental education stepwise according to the grades: the 1st step—grades 1 to 3,

the 2nd step—grades 4 to 6, and the 3rd step—grades 7 to 9, the National Curriculum Guidance 7 suggests developing environmental education through the key stages: Key Stage 1, Key Stage 2, Key Stage 3, and Key Stage 4. This approach is substantiated by the fact that not all of the schools are at the same starting point for developing environmental education. Schools have different previous experience, interests of students and staff, and availability of resources. It seems to be a very sound approach that could be suited for Latvia as well.

The National Curriculum not only suggests this approach but also describes numerous examples of how a particular environmental issue can be developed through the key stages by using a coordinated, cross-curricular approach. The activities suggested are familiar to many teachers. The environmental issues are applicable to any stage and the differentiation comes from the greater demands placed on students as they become more mature (NCC, 1990).

Methods.

1) Timetabling arrangements. The National Curriculum Guidance 7 gives schools the freedom to interpret the guidelines for the various themes and to decide how to best incorporate them into the curriculum as a whole. It does not give a single recommendation for organization of curriculum. It lists a number of them; the following timetabling arrangements for teaching cross-curricular environmental themes are suggested: (1) taught through national curriculum and other subjects; (2) whole-curriculum planning with blocks of activities (e.g., a series of subject-based topics lasting for varying periods of time); (3) separately timetabled themes; (4) teaching through

separately timetabled personal and social education; (5) and long-block timetabling (e.g., activity week) (NCC, 1990).

2) A whole-school approach. The idea of interdisciplinary, cross-curriculum, and whole-school approach for teaching environmental education is seen in both the National Curriculum Guidance 7 and the Latvian Guidelines. However, there is an important difference between the English and Latvian interpretation of this approach. The Latvian Guidelines and the practice of teaching environmental issues (or, in fact, the lack of environmental education in schools) gives the impression that environmental themes are as an appendage that should be "tacked on" to the traditional core subjects. The National Curriculum of the United Kingdom regards environmental education as a central element of the curriculum as a whole that has continuity and progression as any core subject.

First, NCC's Curriculum Guidance 3 (NCC, 1989) identified those elements that contribute to the whole curriculum, namely, the core subjects described in the National Curriculum, religious education, additional subjects beyond the 10 core subjects of the National Curriculum, an accepted range of cross-curricular elements, and extra-curricular activities and outdoor education. Schools are required to have an overall plan for the whole curriculum which should incorporate environmental education.

In the United Kingdom the arrangements for the inclusion of cross-curricular issues are not left to the particular enthusiasm of individual teachers (as it is in Latvia). The planning of environmental education involves the planning of the themes to be covered, coordination between subject teachers, as well as evaluation of the progress and assessment of students' achievements (Palmer & Neal, 1994).

Latvians emphasize that each individual teacher is responsible for introducing environmental issues in his/her subject, for creating programs, plans, and for sequencing and timing the themes. Besides, it is also suggested in the Guidelines that a school's environmental education coordinator is a vice director who organizes the planning of the content for environmental education. These statements may cause some confusion for the teachers. It is not clear in the end who is really responsible for deciding on the content of environmental education or how the process of creating the whole-school's curriculum takes place practically.

3) School as an environmental role model. The National Curriculum talks about the school as an environmental role model. It asserts that it is not sufficient for the subject teachers to approach their subject with environmental awareness, the teachers need to be the role models for the students. Besides, the corporate image of the school has to pass on to the students, and any visitors, the fact that the school is environmentally sensitive. The reminders beside a light switch for switching off the light or turning off the water in the restrooms, different recycling boxes for aluminum, plastic, and paper, reminders about keeping the curtains closed in the classrooms overnight to retain the heat will encourage the students and others to be environmentally aware and keep the students involved in conservation activities (Palmer & Neal, 1994).

Similarly, The Latvian Guidelines urge that environment is of concern not only for certain school subjects but also for the entire school life by saving natural resources and arranging school interiors. Latvians put an extra emphasis on integrating environmental education into practice by creating democratic relations and communication among everyone in the school, as well as keeping high moral standards in

the school and outside it. This is an important issue in Latvia which at the moment is undergoing a wide democratizing process that encompasses all the aspects of the country's life. It is a difficult issue as well for Latvia, which has had only 20 years of democratic experience in the beginning of this century and only 7 years since 1990.

4) Inquiry and investigation by students themselves. Hale and Hardie (1993) write about environmental education in the United Kingdom the following: "...in the formal education sector emphasis has usually been placed on disciplinary rigour which has failed to present students with coherent learning experiences" (pp. 14). Similarly, in Latvia, the authoritarian methods of teaching were the only ones used until recently. The hands-on experiences were denied to students for the sake of discipline and silence in school. Nevertheless, both countries recognize the need to change the past practices to allow the students to learn about, in, and for the environment through direct experiences. The following points emphasized in a leaflet describing the value of field centers in England describe the approach to hands-on experiences represented in both the Latvian Guidelines of environmental education and the National Curriculum Guidance 7.

Environmental education should be based on as much first-hand experiences as possible, and the study of the built environment is as much a part of field work as study of the countryside. Field studies provide one of the most effective way to study environmental issues. The field work is essential in a cross-curricular environmental approach, it gives relevance to topics, because it deals with real people, real situations, real issues, and gives the students opportunities to observe, record, analyze, present, and interpret their own findings. It enables the students to share their knowledge, to work together, and to apply their academic, practical, and social skills. Field work and hands-

on experiences provide the students with opportunity to see the environment and at the same time introduce the idea of environmental responsibility (NAFSO, 1992).

5) A concentric approach in environmental education. National Curriculum Guidance 7 suggests using subject cooperation to encompass global problems by using a concentric approach. Latvians use the same approach but call it "the principle of the study of local lore". The concentric approach to environmental learning has been borrowed from Geography. With this method children relate the topic under discussion to an important problem in their neighborhood, moving out from that to a study of national example, and then beyond that to a problem of global importance.

Assessment and evaluation.

As Palmer and Neal (1994) write in their Handbook of Environmental Education concerning English environmental education, " Critical to the satisfactory implementation of the whole policy is recognition of the central importance of progression and assessment" (pp. 31). Assessment and evaluation need to relate to the three objectives for environmental education, which are knowledge, attitudes, and skills. They note that new methods of environmental assessment need to be developed specifically in relation to certain skills and to the formation of attitudes and values to supplement the statements of entitlement for every child's learning in environmental education (as they were articulated in unpublished NCC Task Group papers in1989 (Palmer, Neal, 1994)).

In the newly published "Teaching Environmental Matters Through the National Curriculum" (SCAA, 1996), the School Curriculum and Assessment Authority specifies the National Curriculum requirements and opportunities. SCAA publication suggests

that the effectiveness of environmental education can be judged via observation of students during lessons and activities, and by using questionnaires and interviews.

In 1989 a working group convened by the NCC prepared a statement of proposed entitlement describing what a 16 year old youth is expected to know and do concerning environment. The list, as it was prepared by the working group in 1989, is given in Palmer's Handbook of Environmental Education (Palmer, 1990). The summary of entitlement is as follows: by the age of 16 all students are expected to have knowledge about the environment, as well as understanding of environmental issues at a variety of levels, ranging from local to global. Besides, students should have knowledge of diverse attitudes and approaches to environmental issues. Students should have skills that enable them to find out about the environment either directly or indirectly. They should be able to communicate knowledge about the environment, their own and others' attitudes and their justification. Students should show participation as part of group decision making and/or by making a personal response.

Summary

To summarize the above, it has to be acknowledged that there are more similarities than differences between the Latvian and the UK environmental situation, types of environmental problem issues, as well as approaches to environmental education as judged from interviews of environmental specialists, various documents, as the guidelines, standards, curriculum, and other related documents concerning environmental education in those countries.

Both, Latvia and the UK attempt to deal with the depletion of biodiversity, ineffective use of natural resources, waste disposal and recycling, and water pollution. It means that students in both countries need to acquire knowledge about a number of similar issues and the skills in solving these problem issues. They also need to formulate their attitudes towards the local and global environments.

The philosophy, goals, and proposed student attainments of environmental education are very similar. Some of the objectives differ due to the different history of the countries and their present political and economical situation. The National Curriculum Guidance 7 lists students' knowledge about local, national, and international environmental legislation as one of the objectives of environmental education. Although Latvians most probably should have a similar objective, the Guidelines do not list it because the authors as well as the majority of Latvia's society are less concerned about political issues than economic ones. Besides, the authors of the Guidelines are more familiar with pure environmental or ecological issues.

The biggest differences between the approaches towards environmental education in the two countries are in the methods the Guidelines and the National Curriculum describe as useful in organizing and teaching environmental education. While the National Curriculum does not, the Latvian Guidelines put an extra emphasis on integrating environmental education into practice by creating democratic relations and communication in school, as well as keeping high moral standards in and outside the school. Perhaps the authors of the English guidelines take it for granted due to their long democratic traditions and history.

Another method that is mentioned in Latvian documents but not in the National Curriculum is employment of the folk traditions as an important asset of environmental education. It represents a unique world view of Latvians and the continuity between the past and present practices.

A big drawback in the Latvian Guidelines, in my opinion, is the lack of clearly described suggestions on how to practically implement environmental education and achieve the well formulated goals and objectives. It seems that environmental education is left too much to rely on the enthusiasm of particular teachers. Furthermore, environmental education is an appendage tacked on to the traditional core subjects.

Latvians could perhaps borrow some of the clearly described ideas from the National Curriculum Guidance 7, which not only lists the elements that form the whole curriculum, but also gives timetabling suggestions, analyzes a number of successful case studies with suggestions for how to deal with environmental issues at each Key Stage, and describes the Key Stage requirements. The requirements and opportunities of environmental issue coverage are specifically listed for each core subject. For the purpose of illustration, here are some examples of requirements and opportunities of Key Stage 4. English (writing)—taking notes from written and oral sources, summarizing carefully and reporting accurately. Mathematics—developing an understanding of scale, including using and interpreting maps and drawings, e.g., plans of the school ground (NCC, 1990).

The tool of assessment of students' attainments is mostly the observations done by a teacher during lessons or activities involving environmental issues. The assessment criteria are the Key Stage requirements. Similarly, the Latvian Guidelines give

suggestions on how the evaluation could take place after each step (after the 3rd, 6th, and 9th grades) by offering possible group activities during which students are observed and their actions, attitudes, and skills evaluated by a teacher.

To conclude, it can be said that there are some ideas about which particular environmental education objectives are important that can be borrowed and included in the environmental education standards of Latvia. Besides, an important advice can be taken concerning practical implementation of the whole school approach to environmental education. Nevertheless, some research still needs to be done in Latvia to find the most successful environmental education methods employed in the primary schools.

Table 5. Summary of the national environmental education curriculum of the UK.

Environmental Problems	1) Inefficient use of natural resources, 2) need for water conservation, 3) inappropriate waste disposal and lack of recycling, 4) depletion of biodiversity, 5) landscape degradation, 6) traffic pollution.
Philosophy	Lay the foundation for protection of the environment and rational use of natural resources through informed and active participation of every individual.
Goals	• Acquire knowledge, values, attitudes, commitment, skills to protect the environment. • Examine and interpret the environment from a variety of perspectives. • Arouse awareness and curiosity about the environment and encourage active participation.
Objectives	**Knowledge**: about natural processes; nature/human and individual/nations interdependence; environmental issues and conflicts; legislation; planning and aesthetic considerations; action to protect and manage environment. **Attitudes**: positive attitudes to the environment; independence of thought; respect for others' views and evidence. **Skills**: communication, numeracy, study, problem-solving, social, and information technology skills.
Strategy	Education **about** the environment. Education **for** the environment. Education **in** or **through** the environment.
Methodology	• Adequate arrangements for planning and implementing programs. • A whole-school environmental policy. • Creative approaches of inquiry and investigation by students themselves.
Entitlement of students by age 16	• Understand natural processes, ecological principles, and relationships; in a range of environments and cultures. • Understand human/environment and community/nation interdependence. • Understand the processes by which communities organize themselves and initiate and cope with change. • Be competent with skills that help to appreciate and enjoy the environment, communicate ideas, participate in decision-making. • View surroundings critically so that a balanced appreciation can be reached. • Understand the conflicts that may rise over environmental issues. • Be aware that the current state of environment has resulted from past decisions. • Identify their own level of commitment towards the care of the environment.
Assessment	Assessment tools—observations of students in lessons and during activities. Assessment criteria—Key Stage requirements.

Denmark

Similarities between the Environmental Situation in Denmark and in Latvia

As has been acknowledged in Denmark's Nature and Environment Policy (DNEP, 1995), most of Denmark's population is conscious of the country's nature and environmental policy. The general public's participation in and awareness of environmental matters are cardinal features of the decision-making process concerning environment issues. According to Denmark's Nature and Environmental Policy "environmental conditions in Denmark are, from a local point of view, more or less under control", only some short term initiatives are called for (DNEP, 1995). Unfortunately, Latvia cannot claim similar success.

The environmental problems presently existing in Denmark are the result of past unwise industrial and agricultural activities that have been stopped but the consequences of which can still be felt. The depletion of biodiversity has lead to 60 % of the total Danish landscape being cultivated. The agricultural activities, especially resulting the loss of wetlands, have lead to the extinction of a variety of animals and plants, including the ex-national bird of Denmark—the stork.

Another environmentally sensitive issue that Denmark needs to face is the reduction of environmentally harmful substances in the environment. Denmark needs to put effort into the reduction of natural resource consumption, the contribution to global pollution is also an environmental issue that Denmark needs to address (DNEP, 1995).

Although Denmark is not facing urgent environmental problems that are threatening nature and humans, the problems that Danes need to deal with are similar to the ones Latvians need to address. They include depletion of biodiversity, inefficient use of natural resources, destruction of wildlife habitats, landscape degradation, and transboundary pollution. In order to conserve and preserve the environment and prevent future unwise environmental acts, the Danish government has given high priority to environmental education in schools and other educational institutions. This includes the incorporation of environmentally oriented sections into subject descriptions and recommended syllabuses for Danish schools (DNEP, 1995). Therefore it seems to be useful to analyze an environmental education subject description in order to draw comparisons with the Latvian Guidelines of Environmental Education and identify the ideas suitable for borrowing.

Nature/Technology and Latvian Guidelines Compared

The core curriculum primary school subject requirements and issues are described in the so called individual "Subjectbooks" that are prepared by the Ministry of Education, Primary School Department (UF—Undervisningsministeriet, Folkeskoleafdelingen). Nature/Technology is the Subjectbook 13 issued by the Ministry of Education, Primary School Department in 1995 (UF, 1995). It is a 45 page document written in Danish that I have summarized in English in order to compare it with the Latvian documents and borrow the useful ideas from it. The summary of the information relevant for the comparison is in Table 6.

Status of Nature/Technology, Subjectbook 13.

The Subjectbook 13 describes goals, main knowledge and skill areas, a recommended curriculum, and teaching instructions for the subject Nature/Technology. The goals and main knowledge and skill areas are mandatory and have to be followed by all the teachers. The recommended curriculum is meant for the municipal school authorities as an indication how a school curriculum can be prepared (though it is not mandatory). The teaching instructions are meant to serve as inspiration for teachers (UF, 1995).

Differently from Latvia and the United Kingdom, Denmark starts environmental education with a mandatory core curriculum subject that is called Nature/Technology that is taught to all students from grade 1 to 6 once a week. Nature/Technology is the first step in environmental education in schools. The knowledge and skills that students obtain in Nature/Technology are part of the natural sciences' foundation which other natural science subjects will build on from the 7th grade.

The approach of combining studies of nature with studies of technology is atypical. Neither Latvians nor the English mix those studies into one core subject. Latvians have a separate core curriculum subject called "Study of Environment and Nature," but only for grades 1 to 4. For this core subject, there are "Methodological Suggestions" approved by the Ministry of Education and Science of Latvia (Karule, 1995). There is no separate subject for teaching environmental education in later grades in Latvia. Besides, the picture in Latvia is further confused by the fact that there are also Guidelines for Teaching Environmental Education in Primary Schools in Latvia, that are approved by the same Ministry of Education and Science of Latvia, that describe

environmental education as a cross-curricular subject starting with the grade 1, without discussing the existence of the core subject "Study of Environment and Nature".

In Denmark, according to the Primary School Law, paragraph 44, section 8, the board of each individual school needs to develop its own curricula and present them to the local council which, according to paragraph 40, section 3, is responsible for approving the curricula. The curricula developed by the individual schools need to have the same overall goals as described in the Subjectbook prepared by the Ministry of Education, and it also needs to have a defined frame (UF, 1995).

The curriculum is required to be "open," so there is enough space for deepening knowledge areas and widening the understanding about the interdependence between humans and environment, as well as including equal and developing dialogue between a teacher and students. Teachers have responsibility for involving students and parents to ensure that the mutually taken decisions get carried out in practice (UF, 1995).

Philosophy.

Nature/Technology is a separate core subject, yet a part of a comprehensive environmental education system. Nature/Technology belongs to a central part of a foundation that children and youth need to bring to the next millennium (UF, 1995).

Goals.

The goal of Nature/Technology is to improve the students' understanding of the interdependence between humans and nature. Similarly, the goal, as described in the "Methodological Suggestions" for grades 1 to 4 in primary schools in Latvia, is to give

students a holistic perspective of the world. The Guidelines include other aspects such as providing the students with the capability to analyze environmental events and take decisions that increase the quality of environment and the well-being of the society, to get involved in a concrete environment, and to be ready to make changes in their lifestyle if it becomes necessary. These more complicated tasks are manageable for older and more mature 7th to 9th graders. The Subjectbook 13 does not include those grades and, therefore, the goals are less sophisticated.

Objectives.

The objectives of Nature /Technology and Environmental Education Guidelines for the Primary Schools in Latvia for 1st to 6th graders are almost identical. The students are expected to get an insight into important phenomena, including interdependencies between humans and environment, both in Denmark and in Latvia. Students need to develop thinking, speech, and understanding of what gives value to daily life. They also have to develop their skills for using their theoretical knowledge in practice through their creativity and ability to cooperate. These are competencies that are important both for environmental preservation and for other aspects of social and political life.

As concerns values, the Danish curriculum suggests promoting students' joy in dealing with Nature/Technology, life's natural conditions and the living conditions, as well as supporting students' eagerness to ask questions and do investigations. Besides, building students' responsibility towards environment should ensure students' engagement and action-taking on environmental issues.

In the Latvian Guidelines, the students' responsibility towards the environment is mentioned only starting with the 7th graders. The 4 to 6th graders are supposed to develop the respect towards the environment, tolerance towards different opinions, and a critical "why" attitude towards things and phenomena. Perhaps, it is not too early to start working on responsibility issues prior to the 7th grade, as it is done in Denmark.

Strategy.

The teaching of Nature/Technology is expected to include a number of interrelated elements:

1. An issue, question, problem, or a set of problems.
2. Main knowledge and skill areas as recommended by the Ministry of Education.
3. Nature, technique, life conditions, and economical conditions.

The main knowledge and skill areas are divided into 4 chapters: (1) the study of the nearby environment, (2) the study of the remote environment, (3) the interdependency between humans and nature, and (4) the acquiring of work skills and analytical methods.

A similar strategy for environmental education is recommended in the "Methodological Suggestions" for the 1st to 4th graders in Latvia (Karule, 1995). The strategy described in the Latvian Guidelines is quite different. The Latvian Guidelines, like the Curriculum Guidance 7 of the UK, suggest the threaded approach to environmental education: study **in** the environment, **on** the environment, and **for** the environment.

It is difficult to judge if one strategy is better than the other. Nevertheless, it seems, that environmental education in Latvia would profit if there were one strategic approach, or at least a clear relation or continuity between the approaches.

Stepwise approach.

As in the majority of other countries' environmental education curricula, the Subjectbook 13 is organized according to the stepwise approach to teaching. The steps, or the phases, as they are called in the Subjectbook, are the following: grades 1 and 2, 3 and 4, 5 and 6. As the Subjectbook indicates, the planning of education needs to be consistent with the maturity levels of students. It also describes conditions that are characteristic for each phase. The examples show the level and depth of what needs to be covered. The examples also serve as a support for teachers, not as mandatory rules to be followed.

Although both the Latvian Guidelines and the "Methodological Suggestions" use the stepwise approach, it is difficult to compare these two documents with the Danish one because of big differences among all three of them. The Danish document gives very general characteristics for each of the phase, "Methodological Suggestions" lists the concrete environmental issues that need to be studied in grades 1, 2, 3, and 4. The Latvian Guidelines divide the steps differently: grades 1-3, 4-6, and 7-9, but, similarly to the Subjectbook 13, give only general characteristic for each of the phase.

Methods.

A number of the methods described in the Subjectbook 13 and the Guidelines are similar. They are: participation, engagement, investigation, experimenting, decision-making, action -taking, hands-on-experience

An interesting approach is recommended in the Subjectbook 13. It suggests a combination of practical and musical dimensions in teaching all the subjects (including environmental education). The reason given is the fact that there is no separate subject teaching music in Danish schools. Although the Danish recommendation might be an interesting and valuable one, it is less important for Latvia because the majority of Latvian schools have Music as a separate subject starting from grade 1 to grade 12.

As the main method for teaching about nature and technique, Danes use experiments that allow students' own investigations and experiences. The Latvian Guidelines suggest balancing theoretical learning and practical experience. The Danish curriculum does not stress exhausting theoretical knowledge. The main emphasis is on students' engagement and their responsibility.

Another important environmental education method, described in the Subjectbook 13, is ongoing dialogue between students and teachers. It is a method that can be employed in Denmark because of its more than a hundred years' long democratic traditions. Latvia is just making its first steps into being a country with a democratic society, and therefore this kind of approach in education is, though desirable, not often employed in classrooms. Nevertheless, the Latvian Guidelines do suggest student participation in the selection of environmental issues to be studied.

The Subjectbook 13, as its name Nature/Technology shows, emphasizes the interdependence of the natural and the built environment, as well as the use of apparatuses and tools in the investigation of the natural environment. The integration of computers into environmental education, as well as in education in general, is required. The Latvian Guidelines suggest using "any methods or tools" (CES, 1996, pp.10) to promote environmental education and to keep students' attention and active participation. The Guidelines do not specifically point out the usage of computers or other sophisticated tools. Perhaps, it is the right approach in Latvia at the present time, since the schools are in a struggling economic situation and there are few computers in schools.

Entitlement and assessment.

The Subjectbook 13 does not list any specific requirements for the students as they pass from one phase onto the next. It does mention that students, in general, need to be able to: (1) formulate questions and hypotheses, (2) plan and carry out investigations and experiments in the classroom, laboratory, local environment, and local society, (3) use equipment, tools, and various instruments, (4) build and design simple apparatuses and models, (5) organize and interpret experiences and results, (6) use basic scientific terms, (7) use information technology, (8) act appropriately in nature, and (9) evaluate problems as they relate to environment, health, and the use of natural resources.

The Latvian Guidelines documents are more specific in describing the proposed attainments or the entitlement. Specific requirements are listed for each stage. The

requirements include knowledge about environment and ecological processes, action skills, and attitudes towards the environment.

Instructions for teachers.

An important characteristics of Subjectbook 13 is its instructions for teachers concerning the organization of classroom conditions for teaching Nature/Technology, the use of books, and the selection of issues to be dealt with. Also, there are separate chapters in the Subjectbook 13 giving instructions on how to communicate, how to use the practical investigative teaching approach, and how to work outside the classroom.

A very useful part of the Subjectbook 13 is the one describing a number of successful examples of environmental activities that have been carried out in Danish primary schools. The National Curriculum Guidance 7 of the UK also has a chapter in the curriculum book that shows such examples in Great Britain. The Latvian Guidelines limit the suggestions for the teachers in the form of generalized methods to be used in environmental education.

Summary

The environmental problems existing in Latvia and Denmark most certainly are different in the level of their urgency. The environmental situation as well as public awareness needs to be improved in Latvia dramatically, while the environmental situation is in much better shape and under control of the state and the Danish society in

Denmark. It seems suitable to borrow the good Danish environmental education approaches that have helped Denmark to become an affluent, yet still environmentally preserved, country for the developing environmental education in Latvia.

Since the discussed documents from Latvia and Denmark are different in the grade levels of the students they are meant for, the status of the subject—one treating environmental education as a cross-curricular subject, the other as a core subject—it is difficult to draw direct parallels.

Nevertheless, there are certain lessons that can be learned and ideas that can be borrowed for the environmental education of Latvia. As concerns the philosophy, the goals of environmental education, and the objectives, they are similar in the two countries. There is an important environmental education objective—responsibility for the environment that is introduced in the Danish curriculum earlier than it is in the Latvian Guidelines. Responsibility for the environment as an objective of environmental education could be introduced to students in Latvia prior to the 7th grade, as is the case now.

The strategic approach to environmental education described in the Subjectbook 13 is similar to the strategic approach given by Kanile in "Methodological Suggestions" from teaching environmental issues in the grades from 1 to 4. Another strategic approach is described in the Guidelines of Environmental Education. Although it is hard to judge which approach is better, it seems to be reasonable to decide on one, thus giving better understanding to the teachers how to follow the documents to be used in carrying out environmental education.

Danish, Latvian, and English environmental education documents suggest proceeding with environmental education in a stepwise fashion. Neither the Danish nor Latvian characteristics of each step are as elaborate as those proposed by the English. The National Curriculum Guidance 7 couples the general characteristics of each step or stage with lists of environmental issues that could be appropriately covered, as well as requirements and options for each of the step.

There are a number of methods for teaching environmental education that are mentioned in the Subjectbook 13, but not in the Guidelines, that seem to be worth considering for inclusion in the Standards of environmental education in Latvia. The main method used by the Danes (similarly to the English) is the hands-on-experience and students' own investigation, while the Latvians propose a balance between theory and practice. Another method, emphasized by the Danes, that could be gradually introduced into Latvian Standards, is the ongoing dialogue between teachers and students.

As concerns the evaluation of the students knowledge, skills, and values, the Subjectbook 13 has less value for Latvians developing the Standards of Environmental Education since it does not include anything on this issue. In order to develop a chapter on students' entitlement and evaluation, more research is needed in Latvia.

A very important part that is included in the Subjectbook 13, but lacking in the Guidelines, is the part specifically dealing with instructions for the teachers on how to carry out environmental education, particularly in the subject Nature/Technology. Such a chapter seems to be a necessary addition to the curriculum to ensure teachers' practical ability and readiness to deal with environmental issues.

Table 6. Summary of the Subjectbook 13, Nature/Technique

Environmental problems	1) Depletion of biodiversity, 2) inefficient use of natural resources, 3) destruction of wildlife habitats, 4) landscape degradation, 5) transboundary pollution.
Philosophy	Nature/Technology is a part of a comprehensive environmental education system—foundation that children and youth need to bring to the next millennium.
Goals	Improve understanding about the interdependence between humans and nature.
Objectives	**Cognitive:** know environmental phenomena, develop thinking, speech; and understand values in daily life and in human/environment interdependencies. **Skills:** use knowledge in practice; develop creativity and ability to cooperate. **Values:** promote eagerness to explore, build responsibility towards environment.
Strategies	Include a number of interrelated elements • An issue, question, problem, or a set of problems. • Main knowledge and skill areas. • Nature, technique, life conditions, and living conditions.
Methods	• Participation, engagement, and responsibility. • Students' own investigation, experimenting, decision-making, action-taking. • Ongoing dialogue between a teacher and students. • Combination of practical and musical dimensions. • Usage of computers and other technique.
Entitlement	• Formulate questions and hypothesis. • Plan and carry out investigations, experiments in classroom, laboratory, local environment, and local society. • Use equipment, tools, and various instruments; use information technology. • Build and design simple apparatuses and models. • Organize and interpret experiences and results. • Use basic scientific terms. • Act appropriately in nature. • Evaluate problems as they relate to environment, health, and the use of natural resources.

United States of America

Environmental Situation in the USA and Latvia

The United States of America is a large country. Geographically, the USA can be devided into six distinct regions: Coastal plains, Appalachian highlands, Central plains, Rocky mountains, Plato and Basin region, and Alaska. These different regions have their individual flora and fauna and are characterized by specific climatic and terrain conditions. The climates vary from arctic to subtropical. The terrain varies from big open plains to valleys and mountains. Therefore the environmental situation and problems are not identical in all the regions of the USA. Nevertheless, a World Bank environmental specialist, Harvey Van Veldhuizen, identified the most urgent environmental problems characteristic to the majority of the regions in the USA (Interview with H. Van Veldhuizen, 1997).

The problems caused by agriculture include the low quality drinking water due to the application of pesticides and fertilizers on agricultural lands that get into the surface and groundwater which are used for drinking. Drinking water problems particularly affect American Midwestern states as Iowa, Illinois, and Nebraska. A drinking water problem identical to this exists in Latvia as well. Agricultural practices also affect the water ecosystem. Chemical substances used in farming as well as agricultural waste are blamed for the development of fish lesions through Pfisteria and the death of large amounts of fish that are also used as food products.

Two other important environmental issues in the USA are soil erosion and accumulation of household and industrial waste. It becomes an increasing problem to find new landfills for the ever-growing amounts of waste, even though the recycling programs are well organized and quite successful in America. The problem of accumulation of waste is equally important and urgent in Latvia as well.

Depletion of biodiversity is a controversial and problematic environmental issue. The Endangered Species Act protects the species that are on the verge of extinction. It often takes a long time to get a species registered in the Act, thus by the time a species is finally listed, it might be already extinct. Besides, the Act protects just species but not the communities or the habitats that are essential for the existence of the species.

The problem of the depletion of biodiversity also involves some transboundary elements. For example, there is a continuous battle between Americans and Canadians concerning the depleted salmon resources. There are a number of other transboundary environmental problems that the USA needs to deal with. One of them is SO_2 generation from thermo-power plants, particularly in the eastern United States, that get carried by the prevailing winds into Canada. The acid rains that are the result of SO_2 generation in the US power plants affect not only Eastern Canada but America itself, especially the New England region. Another transboundary problem affects California. Rivers originating in Mexico carry untreated waters contaminated with sewage waste into the United States.

As it can be seen, there are a number of environmental problems that are similar or equally important to both the USA and Latvia. It is expected that the similarity between the countries' environmental problems would serve as the basis of similarities in

environmental issues and activities suggested by environmental education guidelines of the two countries. The comparison of Latvian and American environmental education guidelines might therefore yield suggestions and ideas beneficial to borrow for the upcoming environmental education standards of Latvia.

The Status of Environmental Education in the USA

The United States of America is a large and a diverse country in an educational sense as well. Environmental education is also not centralized or guided by a central institution of curriculum. Many states, organizations, and associations have devised their own suggestions, frameworks, curricula, guidelines, or standards for teaching environmental education.

Since this paper attempts to analyze environmental education guidelines approved by a central or national educational institution, e.g., ministry, it was necessary to find an American environmental organization that has influence on the way environmental education is planned if not in the whole United States then at least in a big part of the USA. In this case the North American Association for Environmental Education was chosen because it is an integrated network of professionals in the field of environmental education with membership throughout North America and in 40 additional countries.

NAAEE in Creating Standards for Environmental Education

Since the spring of 1994, when the board of directors of the North American Association for Environmental Education (NAAEE) recommended that the group take a lead in establishing a set of voluntary national standards for environmental education, NAAEE has been working on preparing environmental education materials standards, student performance standards, and educator performance standards (NAAEE, 1995).

This work resulted in a document "Environmental Education Materials: Guidelines for Excellence" in 1996 (NAAEE, 1996). The student performance standards as well as educators performance standards are still in the form of Working Papers as of Fall 1997. Nevertheless, the NAAEE Working Papers can be used as documents for comparison between American suggestions and the Latvian Guidelines for environmental education because of the high level of synthesis and elaboration of various existing environmental education criteria, curricula, and standards of different US states presented in the Working Papers.

The working paper "Developing a Framework for National Environmental Education Standards" includes and synthesizes the contributions of the Tbilisi Declaration (UNESCO, 1977), the environmental education model prepared by Stapp and Cox in 1974, and the environmental education goal levels proposed by Hungerford and his colleagues (1980). It also includes the proposed frameworks for the assessment of learning outcomes in environmental education (Iozzi, 1990; Marcinkowski, 1991).

Among the other synthesized documents are the ones prepared by C. Roth (1992), J. Braus (1994), Western Regional Environmental Education Council (1986), Wyoming Environmental Education Task Force (1992), Governor's Task Force on Environmental Education in the State of Arizona (GTFEEA, 1992), New Jersey Environmental Education Commission (1993), Minnesota Environmental Education Advisory Board (1993), Governor's Task Force on Environmental Education in the State of Missouri (GTFEEM, 1994) , and the American Society for Testing and Materials (ASTM, 1991). The above mentioned papers are synthesized and summarized by the author in Table 7.

NAAEE Standards Project and Latvian Guidelines Compared

Philosophy.

The philosophy of the NAAEE's synthesized environmental education is that such education is "an integral part of every student's schooling, [...] but more importantly, environmental education encompasses the knowledge, skills , and inclinations that are essential to maintaining equilibrium between quality of life and quality of environment (NAAEE, 1995). Environmental education is multi-disciplinary in its nature (EPA, 1994).

Goals.

The goals expressed in environmental education plans of different states of the USA are similar to the goals of environmental education of Latvia. Environmental

education has to achieve thorough, continuous, and meaningful environmental awareness of students. The awareness is built upon each individual's basic understanding of the environmental sciences and the understanding of the interrelationship between human actions and the environment. Besides, environmental education is aimed to provide experiences to assist citizens to increase their sensitivity for the environment, as well as develop environmental action skills (NAAEE, 1995).

Objectives.

Working Paper #2 (NAAEE, 1995) describes the following objectives of environmental education: affect, ecological knowledge, socio-political knowledge, knowledge of environmental issues, skills, additional determinants of environmentally responsible behavior, and environmentally responsible behaviors. As it has been seen with the standards of environmental education of other countries, described above, there are a great number of similarities between the objectives of the environmental education of the other countries and Latvia. Therefore, the emphasis here will be on the differences and the ideas that could be borrowed in order to create comprehensive standards of environmental education in Latvia.

The differences in affect objectives seem to be reflecting the cultural differences that define American society, with the so-called Western view of the individual as an independent, self-contained, autonomous entity, while Latvian society is more likely to take an interdependent view of the individual where the focal point is the "self-in-relation-to-other". The independent and interdependent views of the self have a systematic influence not only on a person's affective views but also emotions in general

and cognition (Markus & Kitayama, 1991). In the case of standards of environmental education, it is reflected the following way: one of the objectives in the NAAEE Standards Project is the objective of Moral Reasoning, which means making decisions according to *one's own* sense of morality. Such an objective is not in the Latvian Guidelines. On the other hand, Latvians emphasize the belongingness to the place where one lives, while Americans do not. As concerns the skills, the same cultural differences can be observed. Latvians, contrary to Americans, accentuate team work skills instead of putting emphasis on individual or autonomous work skills.

The NAAEE Framework lists the knowledge of socio-political issues that influence the environment and that are important objectives of environmental education. The Latvian Guidelines seem to be missing such objectives as students' awareness of political and ecological interdependence in urban and rural areas. In fact, the Latvian Guidelines do not differentiate between urban and rural areas.

Also behavioral objectives are much more elaborately described in the NAAEE Standards Project than in the Latvian Guidelines. Students are expected to acquire environmental responsibility and exhibit it though environmentally responsible behavior. Such behavior includes: (1) active participation in problem solving, (2) environmentally sound consumerism, (3) methods for conserving resources (ecomanagement), (4) assisting with the enforcement of environmental regulations (legal action), (5) using personal and interpersonal means to encourage environmentally sound practices, and (6) encouraging environmentally sound policies (political action).

An additional determinant of environmentally responsible behavior, mentioned as an objective of environmental education by the NAAEE, is locus of control. The idea of

either individual or group locus of control, i.e., an individual's belief of whether one or a group is in control of the situation that demands action is not mentioned in the Latvian Guidelines.

Methods.

Environmental education methods have not been synthesized by the NAAEE, therefore the synthesis presented here has been done by the author using the environmental education documents compiled by the NAAEE in the NAAEE Standards Project (NAAEE, 1995). (1) Emphasis in the early years on awareness and feelings, in later years-on knowledge and skill behavior, (2) providing the learner with opportunities to explore the environment with all his/her senses, (3) exposing the learner to a variety of physical and social environments (Stapp & Cox, 1974; Van Matre, 1990), (4) using direct and indirect experiences with local, state, national, and international natural resources to promote environmental awareness, (5) using individual and collective experiences to instill knowledge about humans and environment, (6) creating opportunities to develop outdoor recreational skills (GTFEEM, 1994), (7) community investigations using cameras and other tools, (8) visits to nonformal institutions to take part in hand-on explorations and discoveries, (9) interactions with culturally diverse people, (10) "animal adoption" and "neighborhood restoration" projects, and (11) simulation games to accelerate learning of complex relationships among biodiversity concepts and issues (Braus, 1994).

Among the methods of teaching environmental education, mentioned in the American environmental education literature, that are not mentioned in the Latvian

Guidelines are: development of outdoor recreational skills, interaction with culturally diverse people, "animal adoption" projects, and simulation games to accelerate learning of complex relationships among biodiversity concepts and issues. On the other hand, the analyzed American documents do not mention the cooperation between students and teachers in environmental issue and activity selection. They also do not include "putting environmental education into practice in all forms of school life" as a method of teaching environmental education, which is mentioned in the Latvian guidelines.

Entitlement.

The part of the standards that deals with what students should know and what they should be able to do regarding environmental education has not yet been issued by the NAAEE. Nevertheless, similarly to the analysis of methods above, the synthesis of the documents in the NAAEE Standards Project (1995) is done by the author.

Hungerford and his colleagues (Hungerford, 1980) use a four Goal Level approach in describing the entitlement. 1st is the Ecological Foundations Level, 2nd is the Conceptual Awareness Level, 3rd is the Investigation and Evaluation Level, 4th is the Issue Resolution Skill Level. The students' knowledge, skills, and attitudes are expected to grow and develop as they move from the first to the fourth level.

Upon the completion of instruction in environmental education, the students should be expected to be able to:

Goal Level #1. (1) Communicate and apply the major ecological concepts, (2) understand the principles of ecology.

Goal Level #2. (3) Understand and communicate how man's cultural activities and individual behavior impact on the environment, (4) identify environmental issues, the viable alternative solutions to remediate environmental issues, (5) understand the need for environmental issue investigation, evaluation, as well as the need of personal values' clarification as prerequisite to sound decision making (plus sensitivity toward the environment (Marcinkowski, 1991)), (6) understand the need for responsible citizenship action in the solution of environmental issues.

Goal Level #3. (7) Apply knowledge and skills needed to identify, investigate issues, and to synthesized the data gathered, (8) demonstrate the ability to analyze environmental issues, to identify alternative solutions for important issues with respect to their ecological and cultural implications, (9) demonstrate the ability to identify, clarify, and change personal value positions related to important environmental issues.

Goal Level #4. (10) Demonstrate a competence with a variety of citizenship action skills as: persuasion, consumerism, political action, legal action, and ecomanagement, (Iozzi, 1990; Marcinkowski, 1991) call these "environmentally responsible behaviors" and adds two more determinants of environmentally responsible behavior: locus of control and assumption of personal responsibility), (11) evaluate selected actions in light of their ecological and cultural implications.

Student attainment is clearly described by the above mentioned authors, however, it is not described at what age or what grade level each of the Goal Levels can be expected to be reached. The differences between the American and Latvian suggested attainments for students are the following: Americans do not emphasize students'

readiness to work in groups, while Latvians do. On the other hand, Americans expect the students to believe that they are in control of a situation and can make changes in the environment if it is necessary, i.e., individual locus of control. They also talk about students' environmentally responsible behaviors. Latvians do not mention locus of control at all, and there is only implicit mentioning of responsibility.

Assessment.

The NAAEE Standard Project (1995) gives "A synthesis of the guidelines: Toward a framework for environmental educator performance standards," where there is a chapter on assessment. It suggests that the environmental educators should be able to: (1) engage in on-going assessments of learning and teaching with respect to students' achievements in cognitive, affective, and behavioral dimensions; (2) employ a variety of assessment strategies: observing, listening, discussing students' ideas, asking students questions; (3) develop a set of criteria to use in the analysis of students' work; and (4) develop assessment practices that are fair.

The assessment strategies given in the Latvian Guidelines give only one suggestion—observation of students' actions. It lacks other assessment tools that are mentioned in the NAAEE guidelines. For example, discussing students' ideas and conceptions and asking students questions. An important point in the assessment is its continuity and inclusion of achievements in several dimensions, as cognitive, behavioral, and affective. These assessment dimensions are not explicitly mentioned in the Latvian Guidelines.

Summary

There are some similarities between the state of environmental education in the USA and Latvia. It seems that one of the common features of environmental education in the two countries is confusion. There are so many suggestions, guidelines, frameworks, good and not as good, out there in the USA that, perhaps, should be synthesized into one comprehensive standard document. In Latvia, there is less confusion because of an overwhelming amount of material suggesting how to approach environmental education, instead confusion comes from the lack of teachers' training that gives the necessary environmental education skills.

As concerns the borrowing from American environmental education to enhance Latvian environmental education, Latvia cannot borrow the structure or system, or elaborate national environmental education standards from the USA, but it can, indeed, borrow a great number of excellent ideas on what needs to be included in the upcoming environmental education standards for primary schools in Latvia.

The upcoming Latvian environmental education standards could include, as one of the environmental education objectives, students' awareness of not only economic, social, and ecological interdependence but also political and ecological interdependence distinguishing between urban and rural areas as it is suggested in the NAAEE Standards Project (NAAEE, 1995). The Latvian Standards could also borrow the objective of Environmentally Responsible Behavior that is so well defined and described in the NAAEE Standards Project. Besides, an important additional determinant of

environmentally responsible behavior that could be included in the Latvian Standards is locus of control.

Among the methods of teaching environmental education that can be borrowed from the NAAEE' s project are: interaction with culturally diverse people, development of outdoor recreational skills, and "animal adoption" projects. Another important teaching method could be simulation games to accelerate learning of complex relationships among biodiversity concepts and issues.

As concerns attainments, the Latvian Standards could add environmentally responsible behavior and locus of control as the attainments expected to be exhibited by the students at the age of 16. In order to assess the students' attainments, more methods could be employed as is suggested in the NAAEE Standards Project. Besides observation, there could be listening, discussing students' ideas, and asking students questions. In addition, it could be made more clear to Latvian environmental educators who should develop criteria of assessment and assessment practices and how it might be done.

As there are cultural differences between America and Latvia, some of the ideas expressed in the NAAEE Standards Project might not be suitable for borrowing. For example, Latvians might need to keep more emphasis on team work than individual work. Besides, the idea of putting environmental education into practice in all forms of school life and democratization of the school life thus creating good environment, should be kept as an important method of environmental education in Latvia.

Table 7. Synthesized environmental education standards for USA schools

Environmental Problems	(1) Low quality drinking water, 2) degradation of water ecosystem , 3) accumulation of waste, 4) depletion of biodiversity, 5) acid rain, 6) transboundary pollution.
Philosophy	Encompass the knowledge, skills, and inclinations that are essential to maintaining equilibrium between quality of life and quality of environment.
Goals	Learn to use mind, apply knowledge, have skills to compete in a global economy, be a citizen.
Objectives	**Affect:** environmental sensitivity, active participation in environmental activities, making decisions according to one's own sense of morality. **Cognitive:** ecological, socio-political, environmental-issue knowledge. **Skills:** information analysis, synthesis, evaluation; action strategies, planning. **Environmentally Responsible Behaviors:** participation in problem solving, environmentally sound consumerism, ecomanagement, legal, political action.
Methods	• Emphasis in the early years on awareness and feelings; in later years on knowledge and skill behavior. • Exposure to diverse environments and people. • Direct/indirect experiences with local, state, national, and international natural resources. • Out-door recreation, community projects, visits to non-formal institutions. • Simulation games to accelerate learning of complex issues.
Entitlement	• Communicate and apply the major ecological concepts, understand the principles of ecology. • Understand and communicate human/nature interdependence, identify environmental issues, their solutions, clarify personal values, understand the need for responsible citizenship action. • Apply environmental knowledge and skills. • Demonstrate a competence with variety of citizenship action skills, such as, evaluate selected actions in light of their ecological and cultural implications.
Assessment	• On-going assessments with respect to students' achievements in cognitive, affective, and behavioral dimensions. • Assessment strategies: observing, listening, discussing students' ideas, asking students questions. • Teachers develop a set of criteria to use in the analysis of students' work. • Teachers develop assessment practices that are equal for everyone.

CHAPTER IV

Synopsis of Lessons for Latvia

The comparison of the environmental education in Latvia, the USA, and a group of European countries, especially, the United Kingdom and Denmark, has brought a better understanding about the status of Latvian environmental education system relative to other countries. The main purpose of this work was to find the ideas that Latvian environmental educators and the people devising environmental education standards could borrow from other countries. As the basis for analysis, various countries' environmental education experiences, empirical research, and environmental education documents, particularly guidelines and standards of Latvia, Denmark, the USA, and the UK, were used. The eight aspects compared, using the standards and guidelines, were the Environmental Problems in the four countries, the Philosophy, Goals, Objectives of the environmental education documents of those countries, as well as, Strategy, Methods, Entitlement, and Assessment of environmental education as described in those documents.

The analysis showed a great deal of similarity and common features of the environmental education approaches in all the countries. Nevertheless, there are also a number of differences that distinguish one country from another. Of particular interest was what was in the environmental education guidelines and standards of the other

countries that Latvia did not have in its guidelines, and also if there was something characteristic only to Latvian environmental education guidelines.

All the differences and ideas for borrowing could be divided into two groups. One of the groups contains the ideas that seem most important for including in the upcoming Environmental Education Standards for Primary Schools in Latvia, the other group includes the ideas that still demand further research before a final decision, on whether their inclusion in the standards is reasonable, can be made. (See Table 8.)

The summary of environmental situation as well as the standards and guidelines of the four countries is seen in Table 9. In order to make the comparison less wordy, certain wordings were changed. For example, "understand and apply the major ecological concepts, and understand the principles of ecology" was reformulated to "ecological knowledge". Another example: "knowledge about the interdependence between natural human-created and environment with its economical, social, political, culture-historical, ethical values" was termed "socio-political knowledge".

The visual tool of bolded and normal fonts was used with the purpose to make the comparison between the countries visually manageable. The bolded text represent the features that are common to Latvia and at least to one other country. The differences are presented with normal font.

Environmental Situation

The environmental problem characteristic to the four countries, Latvia, Denmark, the USA, and the UK, is the depletion of biodiversity that includes destruction of wildlife

habitats, deforestation, degradation of water ecosystem, and degradation of landscape. The main cause of biodiversity loss has been habitat destruction driven by human agricultural activities, logging, infrastructure development, or settlement. Conversion of habitat has resulted in the extinction of number of species. As the World Bank (WB) issued World Development Indicators 1997 (WB, 1997) show, in 1994, 5 % of Latvia's and the USA's mammals, 2 % of Denmark's and the UK's mammals are threatened. There are also threatened higher plant species: 11 % of America's species, 2 % of the UK's, 0.5 % of Denmark's and 0 % of Latvia's species are close to extinction. (These data are subject to variations in definition and in reporting to the World Conservation Monitoring Centre (WCMC), which compiles and disseminates them.)

The inefficient use of natural resources is another problem reportedly existing in Latvia, the UK, and Denmark. There is awareness in those countries that sustainable agricultural and forestry practices could be a way to stop the excessive use of resources. The sustainable practices can save the depleting drinking water sources of the UK, for example. However, the low quality drinking water problem existing in Latvia and regions of the USA demand changes in agricultural practices, namely in usage of pesticides and fertilizers, and better treatment of household and industrial waste. The ever-growing amounts of waste demand new treatment methods to be employed in Latvia, the UK, and the USA. Vast areas of land get turned into landfills that destroy the landscape, habitats, and affect human health. Wise consumerism, recycling, limiting of non-biodegradable substances, incineration of waste, and 'waste-to-energy' processes have been found to be useful tools for reducing the amounts of waste.

Traffic is the main air polluter in big cities. In turn, air pollution is the main threat to human health in the towns and cities. The number of cars and the amount of the emitted CO_2 affects the quality of the air. World Development Indicators 1997 (WB, 1997) show 748 vehicles per 1,000 people in the USA, 403 in the UK, 364 in Denmark, and 170 in Latvia in 1994. Carbon dioxide emissions from industrial processes per capita in metric tons in 1992 in the USA were 19.1, in UK 9.8, in Denmark 10.4, and in Latvia 5.6.

Carbon dioxide emissions, a byproduct of energy generation and use, are the largest source of greenhouse gases associated with global warming. Other transboundary air pollutants are emissions of sulfur dioxide and nitrogen oxides resulting from bad combustion or use of bad fossil fuels, leading to acid rains. The northeastern United States, Scandinavia, and Latvia are loosing high quality soil and large amounts of fish due to this transboundary pollution.

It is clear that environmental systems of the discussed countries are similar and to a large extent interconnected even though the countries geographically are not adjacent to each other. The four countries: Latvia, Denmark, the USA, and the UK need to find solutions for common problems. It leads to the conclusion that the issues discussed and the activities undertaken in environmental education of those countries could also be similar. It is also expected that the environmental education guidelines and standards should include similar goals and objectives in order to educate the new generation so that it will be able to manage the common environmental problems.

General Commonalties and Differences of Environmental Education in Latvia and Selected Other Countries

The philosophy of environmental education in the countries studied is similar and can be formulated in two sentences: Environmental education can raises public awareness and participation in the protection of the environment. Environmental education is a tool for promoting sustainable development and maintaining equilibrium between quality of economic life and quality of environment.

The issue of whether environmental education should be a cross-curricular theme or taught through one or more core curriculum subjects still remains an unanswered question for many environmental specialists. Nevertheless, the standards of environmental education of the discussed countries indicate that at the present time environmental education should to be a cross-curricular theme integrated into all the traditional core subjects, as it is suggested by the National Curriculum Guidance 7 (1990), the North American Association of Environmental Education Standards Project (1995), and the Guidelines for Environmental Education in Primary Schools (1996). Danish Nature/Technology, Subjectbook 13 (1995) is designed specifically as a particular core subject.

Another unsettled issue is whether environmental education in schools should be mandatory or voluntary. In Denmark, as well as the other Scandinavian countries, and the UK, environment is an obligatory part of general education, while in the USA and Latvia environmental education is considered to be a matter of voluntary decision of each school or particular teachers. There are no attempts in the paper to settle this issue,

although this researcher's personal opinion is that environmental education should be a mandatory part of education.

The Goals of the environmental education of the four countries are basically identical. All of them see the goal of environmental education as providing the students with environmental knowledge, attitudes, and skills. Although there is this large unity of the goals among these countries, one must not forget that it does not mean that environmental education thus could be identical. The assumption, one goal—one path towards it, is wrong. The same word can have different meaning to people from different countries. It is due to their different cultures and, therefore, the weight or precise meaning that they put into words. One must not forget the lessons learned in the former GDR described by Mitter (1992).

The biggest differences between the countries are observed in the methods of teaching environmental education. One of them is the different emphasis that countries put on the individual versus team work: one's own investigations and opinions versus team activities and decisions. Perhaps the reason for the differences are distinct cultural, historical, economic, social, and political backgrounds of the countries that inevitably influence the people, the way they think and act, or as Hofstede (1997) puts it—peoples' "software of the mind." Latvia, the Scandinavian countries, the Netherlands, Austria, the UK, and the USA have different degrees of collectivism and individualism in their societies. Although many authors have written about this, Hofstede's (1997) summary relates well to this issue in this study. He notes: "Individualism pertains to the societies in which the ties between individuals are loose: everyone is expected to look after himself or herself and his or her immediate family. Collectivism as its opposite

pertains to societies in which people from birth onwards are integrated into strong, cohesive groups, which throughout people's lifetime continue to protect them in exchange for unquestioning loyalty" (pp. 51). On a continuum with one extreme being individualism and the other collectivism, Latvia would be standing closer to collectivism, the USA is the most individualistic country among 54 compared by Hofstede. The UK scores only 2 points less, the Netherlands 11 points less on individualism than the USA (on a 100 point scale). Denmark scores 17 points less and Austria 36 points less than America. Unfortunately there are no data on Latvia, but some assumptions can be made using variables given by Hofstede, as well as knowing the history and people of Latvia.

There is a strong relationship between national wealth and individualism, with the causality direction from wealth to individualism. Countries with colder climates tend to show more individualist cultures, because people's survival depends on personal initiative (Hofstede, 1997). Latvia geographically is on a high latitude, which means that the climate is quite cold. This should be a case for an individualistic culture. Nevertheless, collectivist culture is moderately strong in Latvia. The low national wealth could serve as an explanation for that. However, history needs to be taken into account as well. For 700 hundred years before this century, Latvia was under the rule of Germanic countries, which tend to have individualistic cultures. In this century, until very recent, Latvia was under strong influence of a very collectivist culture in Russia. These statements are contradictory and therefore cannot serve as good predictors, unless we assume that there is a certain confusion in people's minds. It seems, that the transition that Latvia is passing though now is not only political, economic, and social, but also touches the most complex human structures, values, and attitudes.

It is very likely that the changes that the Latvian people and the country are going through at present will result in significant changes in education, including environmental education. Personal point of view, autonomy, and independent judgment may eventually prevail over team work. That, in turn, might promote the desired "democratic relations" that the Guidelines emphasize , but at present might be confused with the idea of living in harmony and being nice to each other. A more individualistic culture would accept more free and open influence and interaction between students and teachers. Such a relationship, guided by fair rules, then can develop into a free and equal dialogue between students and teachers and "democratic relations" in schools, as well as in the rest of the society.

The Objectives of environmental education of the four countries show few differences and quite a number of commonalties. It is defined by the similarity of the main environmental problems and the common aim of environmental education—promotion of sustainable development and maintenance of balance between quality of life and quality of environment. All of the countries distinguish between the Cognitive, Skill objectives, and Affect. Latvia and the USA add the Behavioral objectives as well. Nevertheless, the differences exist and some explanation can be suggested by findings of Hofstede's (1997) cross-cultural studies. For example, one dimension on which Latvia, Denmark, the UK, and the USA differ is their degree of masculinity versus femininity. Hofstede suggests that cultures can either be more masculine or feminine, which implies the desirability of assertive behavior (masculinity) against the desirability of modest behavior (femininity). Hofstede found (Hofstede, 1997) that more masculine societies and their governments when composing national government budgets, tend to prioritize

economic growth over protection of the environment. (Here it needs to be noted that a government can be viewed as representative of the given country's dominating cultural values.) Lesser funds for environmental protection also mean lesser support for environmental education. Even when masculine countries define the same objectives for their environmental education as the feminine countries, taking into account their similar environmental problems, the process or the result of the education will not be identical.

The UK and the USA are among the most masculine countries, while Denmark is among the most feminine. There are no direct data on Latvia's femininity, but knowing Latvia's governments expenditures on defense as a percent of GDP, which is 0.9% compared to 1.8% of Danish expenditures in 1994 (WB, 1997), it can be suggested that Latvia is a feminine country. Thus, there is more hope that the objectives of Latvian environmental education will be supported by the population and the government and, therefore, will be achieved.

Data on the other countries are the following: the United States of America in 1994 spent 4.2% of GDP on defense, the UK spent 3.8%, the Netherlands 2.1%, and Austria 0.9%. These kind of data suggest that environmental education specialists and enthusiasts face challenges that are different dependent on the country and its culture.

The Strategies of environmental education are almost identical in the guidelines and standards of Latvian, the UK, and American environmental education. The Danish environmental education strategy is not comparable due to the fact that, in contrast to the other three countries where environmental education is viewed as a cross-curricular theme, the Danish document Nature/Technology, Subjectbook 13, deals with a core subject. The notable similarities may be explained by good cooperation among the

environmental educators of the countries as well as the borrowing of environmental education materials produced by specialists in other countries. Particularly, it seems to be the case with Latvia and the UK. The strategy in the Latvian Guidelines is formulated in almost identical sentences to the National Curriculum, Guidance 7. Since the Guidance 7 was issued first, it is clear which was the original. This should not be viewed as a criticism, though, especially because the whole purpose of the present paper is borrowing.

Similar patterns can be seen in Entitlements sought. The Danish document is addressed to students in the grades 1 to 6. The other three documents include all the students in the primary schools and, therefore, the attainments are formulated for the 16 year-olds. Similarly, in the countries discussed, it is expected that the students by the age 16 will have a certain amount of knowledge and understanding about ecological, environmental, and socio-political issues. Students are also expected to be able to exhibit environmental action skills, as well as have a positive environmental attitude.

The Assessment of environmental education and of students' attainments is the least well described chapter in all of the guidelines and standards. Observation is mentioned as the main assessment tool of students' attainments in all the documents. There is less clarity concerning the assessment criteria and assessment strategies.

Ideas for Borrowing

Borrowing from one nation's practices by another is never a problem—free process. However, given the parallels observed, some suggestions can be made. The

ideas for borrowing can be grouped into suggestions for actions and suggestions for further research. These suggestions cover Objectives, Strategies, Methods, Entitlement, and Assessment.

(1) Environmental responsibility.

One of the environmental education objectives that might be borrowed from the objectives listed in the Nature/Technology, Subjectbook 13 (UF, 1995),the NAAEE Standards Project (NAAEE, 1995), and described by Hines and his colleagues (Hines, 1986-1987) in their empirical research materials is Environmentally Responsible Behavior with its constituents: environmentally sound consumerism, methods for conserving resources (ecomanagement), assisting with the enforcement of environmental regulations (legal action), and encouraging environmentally sound policies (political action). In addition, an individual's belief of whether one (a group) is in control of the situation that demands action, could be included as one of the objectives of environmental education. Besides, also the issue of responsibility might be included in the Latvian environmental education prior to the grade 7.

An integral part of environmentally responsible behavior are emotions, affection, and feelings. Love is a productive orientation towards nature and oneself (Fromm, 1977). There are a number of empirical studies done in Finland, Germany, Russia, and the USA that were described in Chapter I that show the importance of emotions in motivating environmentally responsible behavior. The Latvian Guidelines do not disregard emotions as an important motivator for learning and a tool for developing connections and responsibility for the environment. Such an approach should certainly be kept and employed in environmental education.

(2) Personal and social skills.

An intertwined group of objectives of environmental education described in Guidance 7 might also be in Latvian standards. It is independence of thought on environmental issues coupled with respect, tolerance and open-mindedness towards the beliefs and opinions of others. The English call this "personal and social skills" and view these skills as essential for everyone living in the environmental interdependence of individuals, groups, communities, and nations. Some psychologists identify these skills as interpersonal intelligence (Gardner, 1983), or practical social competence (Sternberg, 1984), or environmental intelligence (Lancey, 1992). All of these mean the ability to solve the ill-defined problems that arise naturally in daily life, for which there may be multiple solutions and multiple ways of obtaining them.

Perhaps, more objectives need to be added to the list of objectives of Latvian primary school environmental education. For example, the "independence of thought on environmentally issues" and "respect for the beliefs and the opinions of others, open-mindedness" would be useful additions.

(3) The complex environment of ecological concerns.

Another objective that might be added to the Latvian standards that is in the National Curriculum Guidance 7 (NCC, 1990) and the NAAEE Standards Project (NAAEE, 1995) is the cognitive objective dealing with knowledge about political and ecological interdependence, and, also knowledge about local, national, and international environmental legislation.

(4) The use of information technology.

Uncertainty about inclusion in the objectives of "information technology skills" is not due to a doubt whether information technology is needed or not, but rather due to the strained economic situation in Latvia. Interviews with teachers, financial, and computer specialists might to be conducted to get a clearer understanding on this issue.

(5) The stages or steps in environmental education.

Some ideas might be worth borrowing to enhance the strategy of environmental education in Latvia. It might be useful to define one nationally accepted strategy of stepwise environmental education. At the moment there are two approaches, both approved by the Ministry of Education and Science of Latvia. One of them suggests the following steps: grades 1and 2—first step, 3 and 4—second step. The other divides the grades differently: 1 to 3, 4 to 6, and 7 to 9.

Piaget's stages of cognitive development (Piaget, 1950), particularly, the concrete operations period which characterizes 7 to 10 year-olds and the formal operations period, 11 to 15 year-olds, correspond to grades 1 - 4 and 5 - 9 of Latvian schools, respectively. Following Piaget's theory, perhaps grades 4 and 5 should not be part of the same stage of teaching environmental education. Thus, perhaps the stage division in the Guidelines is not the best judging from the viewpoint of Piaget's cognitive development theory. His theory postulates distinct differences in the way children process the information in age 7 to 10 and in ages 11 to 15. The younger, 7, 8, 9, 10 year-olds are capable of performing concrete operations that are directly related to objects. These operations are internalized, i.e., can be carried out in thought, and they also are reversible, i.e., they can be reverted into their opposite. The 11 to 15 years old

adolescents are not restricted to the problem at hand. They can imagine a problem and develop a hypothesis about what could happen under different combinations of factors. Adolescents are able to engage in "pure thought which is independent of action," i.e., formal operation (Piaget, 1950, pp. 149). The Guidelines do not expect the students to perform formal operations before they are in the 7th grade or 13 years old. Since there is little reason to suppose that Latvians are developing later than Piaget's subjects, which are supposed to be universal representatives, perhaps the stage division in the Guidelines should be reviewed.

Piaget acknowledged that there is a certain lack of coordination in children's thinking processes. Not always does a child apply a mode of thinking characteristic to a single stage in all aspects of life. Piaget called this phenomena horizontal decalage (Piaget, 1950). Perhaps, a good system to take all this into account would be to use the Key Stage approach characteristic of the environmental education in the UK or a four level hierarchical approach proposed by Hungerford (1980) in the USA, thus avoiding the difficulties arising from the fact that not all students and staff have the same knowledge and interest in environmental education. This approach can also reduce the problems related to schools' different previous experiences and the availability of resources.

The stage description can include the required and optional environmental issues to be discussed and activities to be undertaken. These requirements then could be used by teachers as criteria for assessing the students' attainments and the success of environmental education in general.

(6) Evaluation.

A further suggestion for action is to give more detailed instructions to the teachers concerning the strategies that can be employed in the evaluation process. In addition to observation of students' performances during activities dealing with environmental issues, teachers could use questionnaires, interviews, and discussions where students are encouraged to express their ideas.

(7) Democracy, individualism, and team work.

As concerns the methods of teaching environmental education, it might be useful to conduct further research on the specific contributions of individual and of team work needed for the development of environmentally responsible behavior and successful environmental education in general. Environmental education issues could be taught via an on-going and relatively equal dialogue between teachers and students and might contribute to the new generation's understanding of democracy.

Democracy and democratic relations are concepts that have appeared as new phenomena in Latvian schools in the 1990's. The Guidelines lists democratic relations in schools as one of the methods of approaching environmental education. However, it might be necessary to give teachers, the majority of whom have been indoctrinated by Marxist ideas of the world prevailing in education until very recently, more understanding of what the concept "democracy" means. It can be helpful to include in environmental education standards the description of what "democratic teacher" stands for. The essential characteristics have been outlined by Patrick (1996a). A democratic teacher (1) emphasizes interactive learning tasks in which students take responsibility for their educational achievements, (2) encourages and protects free expression of ideas, (3)

establishes and applies rules fairly, equally protecting each individual, (4) creates a classroom environment in which there is respect for the worth and dignity of each person, (5) takes responsibility for developing challenging and interesting lessons, and (6) continues his/her self-education.

Students can learn about democracy in their Civic classes that have recently acquired new content recently and that are mandatory to all ninth graders in Latvia. But since environmental education is supposed to start in the first grade, it is likely that students will not engage in democratic relations with their teachers unless the teachers encourage appropriate behaviors via their own conduct.

J. Patrick wrote that ideas of democracy cannot be implemented successfully unless there is certain level of understanding and support for those ideas. He also wrote about the institutions of constitutional democracy: "No matter how well constructed, (the institutions) cannot be a machine that would go of itself" (Patrick, 1996b, pp. 6). The same applies to environmental education. No matter how well constructed, defined, and outlined guidelines or standards for environmental education might be devised, there needs to be certain comprehension and commitment among people concerning the necessity for such education at large. Besides, as it has been noted previously, it is necessary that the government gives sufficient attention and support to institutions promoting environmental education, and do not forget about environment while advocating economic development of Latvia.

(8) Hands-on experiences.

Among the methods that perhaps should to be emphasized in the upcoming Environmental Education Standards of Latvia are students' own investigations and other

hands-on experiences. Methods that can be included are interaction with culturally diverse people and simulation games on biodiversity concepts as well as on some political negotiation processes that involve environmental concepts.

(9) Whole curriculum planning.

A method mentioned in the Latvian Guidelines is a whole-school approach to environmental education. The way it is presented in the Latvian Guidelines, it is a good idea without practical implementation instructions. To change that, it could be worth borrowing certain ideas from the National Curriculum Guidance 7 (NCC, 1990), which suggests whole-curriculum planning, which means identifying the elements that contribute to the whole curriculum. Such elements are: the traditional core subjects, additional subjects beyond the core subjects, cross-curricular elements, extra-curricular activities, and outdoor education. Schools could be required to have an overall plan for the whole curriculum incorporating environmental education. Using such a plan, environmental issues then could be taught through core and other subjects, separately timetabled themes, through separately timetabled personal and social education, and using activity weeks.

Such a plan like could make environmental education comprehensive instead of relying on the enthusiasm of particular teachers, hoping that they will incorporate environmental issues in the subjects they teach. Enthusiasm is an important attitude in school, but without practical support it may soon subside.

(10) Examples and specific instructions.

Various practical suggestions for implementing environmental education are missing from the Latvian Guidelines. The idea of supplementing environmental education

guidelines with examples of successful environmental education activities carried out in local schools as well as with specific instructions for teachers, like, classroom conditions, use of books, selection of issues, could be borrowed from both the National Curriculum Guidance 7 (NCC, 1990) and Nature/Technology, Subjectbook 13 ((UF, 1995). The element borrowed should probably be just the approach but not the content, because the content needs to be specific for each country with its particular historical, social, economic, and political background, taking into account the country's cultural characteristics and its folk traditions. Therefore, in order to decide which items or examples should be included further research is needed.

(11) Format of guidelines.

In general, it may be helpful to present the Guidelines in a more visually clear format with clearly devided and described Goals, Objectives, Strategies, Methods, Entitlements, and Assessment of environmental education, thus making comprehension easier.

Although this study developed a number of suggestions for improvement of the present Guidelines for environmental education for primary schools in Latvia, it needs to be acknowledged that the Guidelines are an excellent start for implementing environmental education as a cross-curricular subject in the schools of Latvia. The Guidelines contain essential ideas for such implementation. The present study has aimed to refine and improve those ideas with the hope that the suggestions expressed here could supplement the work done by environmental educators, specialists, and enthusiasts who selflessly give their efforts to the cause of saving our future through environmental education.

Table 8. Environmental education standards: Lessons for Latvia.

Suggestions for borrowing	Suggestions for further research

Objectives:
• environmentally responsible behavior:
  • environmentally sound consumerism
  • ecomanagement
  • legal action
  • political action
• individual's belief of being in control of situation
• independence of thought coupled with respect towards the opinions of others
• knowledge about political and ecological interdependence
• knowledge about local, national, international environmental legislation
 	
Methods:
• on-going and equal dialogue between teacher and students
• students' own investigation
• elaborate whole-school approach
	Methods:
	more individual or team work
	
	Strategy:
	stage division according to grades or the level of environmental awareness
	
	Skills:
	information technology
	
	Assessment:
	more detailed instructions on how to do assessment
	
	Instructions for teachers:
	• "democratic teacher"
	• examples of own country's successful experiences
	• specific instructions (use of materials, classroom conditions, etc.)

Reflections on the Process and the Limitations of This Study

(1) Reflections.

The production of this paper involved extensive reading and research using traditional libraries as well as the Internet. Numerous calls to the ministries of education as well as to individual environmental education specialists in other countries and in the USA were placed. Several environmental specialists from Latvia, the USA, the UK, and Denmark were also personally interviewed. The extensive reading and personal contacts with environmental specialists and educators allowed the researcher to better understand the status of environmental education in Latvia and the place of Latvia on the "big map" of environmental movement amongst other countries.

The surprising similarities in the environmental problems and the environmental education reminded me of a saying, "the world is small." One would not expect to meet the same problems in a small European country and a big country like America; nevertheless, that is the case. Therefore, the considerable similarities in the philosophy and the goals of environmental education in different countries became less surprising to the researcher during the course of the study.

Also, during the course of study certain differences of environmental education in different countries became distinct. Although such differences were expected, only during the research process it became more clear why, for example, certain teaching methods are employed in one country and not in the other. History and culture influence approaches to education and teaching methods, and cannot be ignored. Understanding of cultural differences is important because different people might need different motivations to achieve identical goals.

An important realization that this paper gave was that borrowing of teaching methods from one culture to another might be a very sensitive and lengthy process. Such process might involve not just changes in school, it might be in some ways opposing traditional ways of acting and thinking and therefore call for deep cultural alterations.

(2) Limitations.

The comparison of the environmental education materials of the four countries is limited to only the standards or guidelines of environmental education approved or recognized by the countries' ministries of education or large non-governmental environmental organizations. A number of documents of the same country were synthesized into a single one by the author for the purpose of comparison. Some of the

wordings in the documents were simplified for the sake of conciseness and ease of contrasting. The documents from Denmark and Latvia were summarized and interpreted in English thus leading to a certain degree of subjectivity in the later analysis and comparison between the documents. Certain restrictions on the procurement of materials were due to the fact that the author were unable to spend sufficient time or visit all the countries involved in this study. Some of the analysis is therefore-based only on theoretical work without assurance that what is written in the documents is employed in practice.

There are certain biases that the author has which might have influenced on the comparison of the countries and analysis of the documents. First of all, Latvia is the author's native country. The criticism towards Latvia therefore might have been stronger than towards the other countries. As an old Latvian saying goes: We expect the best from whom we love the most. Latvia will be behind the other analyzed countries in developing environmental education due to its low national wealth compared to all the other analyzed countries. It will still take a while before the majority of the population and the government will feel the need and have sufficient energy and resources to deal with environmental problems and promote environmental education. Thus, although the author opposes relying on particular teachers' enthusiasm in implementing environmental education, the environmental educators of Latvia must try to have perseverance in their enthusiasm.

Interest in environmental education is tremendous these days, and, as a result, new environmental education documents appear every day. Therefore the latest editions might have been omitted in the between-country comparison done in this paper.

Nevertheless, this work is hoped to provide a number of useful suggestions for inclusion into the upcoming standards of environmental education of the primary schools of Latvia.

Table 9. Environmental education guidelines and standards compared across the countries.

	LATVIA	UNITED KINGDOM	DENMARK	USA
Environmental Problems	• **depletion of biodiversity** • **degradation of water ecosystem** • **inefficient use of natural recourses** • **low quality drinking water** • **accumulation of waste** • **landscape degradation** • **traffic pollution** • **transboundary pollution**	• **depletion of biodiversity** • **inefficient use of water** • **inefficient use of natural resources** • **inappropriate waste disposal and lack of recycling** • **landscape degradation** • **traffic pollution**	• **depletion of biodiversity** • **inefficient use of natural resources** • **landscape degradation** • **transboundary pollution**	• **depletion of biodiversity** • **degradation of water ecosystem by agriculture** • **low quality drinking water** • **accumulation of waste** • acid rain • **transboundary pollution**
Philosophy	**EE—a cross-curricular theme**	**EE—a cross-curricular theme**	Nature/Technology—a core subject	**EE—a cross-curricular theme**
	Environmental education rises public awareness, participation in the protection of the environment. EE is a tool for promoting sustainable development and maintaining equilibrium between quality of life and quality of environment.			
Goals	**Provide the students with environmental knowledge, attitudes, and skills**			
Objectives	**Cognitive;** • **Ecological knowledge** • **Knowledge of environmental issues** • **Socio-political knowledge** • analytical thinking • decision making.	**Cognitive:** • **Ecological knowledge** • **Knowledge of environmental issues** • **Socio-political knowledge** • planning , design, and aesthetic considerations • effective action.	**Cognitive:** • **Ecological knowledge** • **Knowledge of environmental issues** • **human/environment interdependencies** • thinking, speech, understanding of values in daily life.	**Cognitive:** • **Ecological knowledge** • **Knowledge of environmental issues** • **Socio-political knowledge**

	LATVIA	UNITED KINGDOM	DENMARK	USA
Objectives	**Affect**: • **positive attitudes to the environmental** • **emotional involvement with the environment** • belongingness to the local environment **Skills**: • **knowledge application** • **action strategy** • **team work** • **participation in the environment improvement**	**Affect**: • **positive attitudes to the environment** • **appreciation of, care and concern for the environment** • independence of thought • respect for others' beliefs and opinions • respect for evidence and rational argument. **Skills**: • **knowledge application** • **action strategy** • **team work** • study skills • information technology	**Affect:** • **joy in dealing with Nature/Technology, life's natural and the living conditions** • **eagerness to ask questions and do investigations** • responsibility towards environment **Skills:** • **knowledge application** • **action strategy** • **team work** • creativity	**Affect:** • **environmental sensitivity** • **motivation for participation** • recognition of different value perspectives • making decisions according to one's own sense of morality **Skills:** • **knowledge application** • **action strategy** • thinking in systems • forecasting, planning • environmentally responsible behaviors
Strategy	**Study in, on, for the environment** **Stepwise approach,** **3 grade levels**	**Study in , on, for the environment** **Stepwise approach,** 4 Key Stages	Interrelate knowledge and skills, theory and practice **Stepwise approach,** **3 grade levels**	Interrelate: **cognition, affect, and behavior** **Stepwise approach,** 4 Goal Levels
Methods	• equal attention to natural/ human-environments • student participation in issue selection • **team work** • **creative approaches** • **whole-school policy** • **community activities**	• **creative approaches** • various arrangements for implementing environmental educ. • **whole-school policy**	• Hands-on-experience more than theory • students' own inquiry • engagement, and responsibility • teacher/student dialogue • practical/musical dimensions combined • computer use	• Feelings—beginners, knowledge, skills—advanced students • direct/indirect experiences • **individual/ team work** • outdoor skills • **community work** • simulation games

	LATVIA	UNITED KINGDOM	DENMARK	USA
Entitlement	**Understand** • **natural processes, ecological principles and relationships** • **human/environment interdependence** **Have skills in** • **identifying synthesizing of data** • **persuading others** • **communicating ideas** • in setting action goals • working in groups **Attitude** • **personal positive** • **critical view of surroundings**	**Understand** • **natural processes, ecological principles, and relationships** • **human/environment interdependence** • conflicts over environmental issues **Have skills to** • appreciate and enjoy environment • **communicate ideas** • **participate in decision-making** **Attitude** • clear personal values • **critical view of surroundings**	• Formulate questions and hypothesis. • Plan and carry out investigations, experiments. • Use equipment, tools, instruments; information technology. • Build and design simple apparatuses and models. • Organize and interpret experiences and results. • Use basic terms. • Act appropriately. Evaluate problems.	**Understand** • **natural processes, ecological principles, and relationships** • **human/environment interdependence** **Have skills to** • **identify issues** • **synthesize data** • clarify, and change personal values • **persuade others** • act responsibly **Attitudes** • responsibility • clear personal values • **sensitivity**
Assessment	**Tool—observation** Effectiveness markers: • interest, participation • understanding about the local environment • improvement ideas **Criteria**—grade level attainments	**Tool—observation** **Criteria**—Key Stage requirements	NA	**Tools—observation**, listening, discussing, questioning. **Criteria**—teacher developed

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